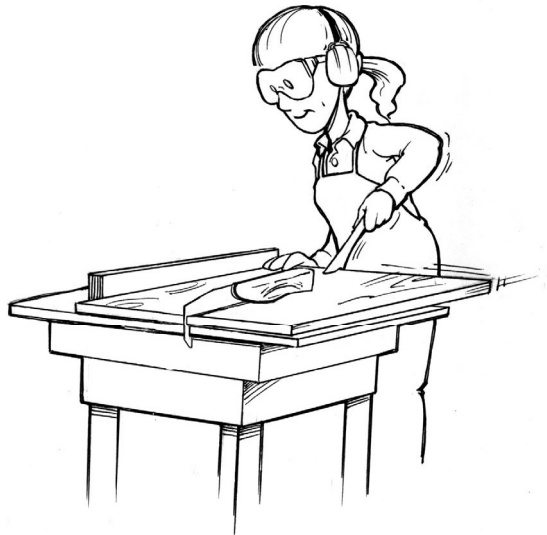


In teaching about potential hazards, students should be encouraged to think about the action/reaction that takes place between the tool and the material—does the action of the tool threaten kickback? eject debris? generate heat? If students learn to ask and answer these kinds of questions for themselves, they will have acquired a valuable skill in regards to their own and others' safety—the ability to predict and control hazards.

When a teacher makes safety an integral part of the instructional program, it is learned in much the same manner as skills and operations. However, safety can also be 'caught' as readily as 'taught,' implying that proper safety attitudes and practices are contagious and their development strongly influenced by the teacher's attitude and conduct in the shop. Safety does not just happen, but is the result of a well-planned program administered and modeled by the technology education teacher.



### **Table Saw Accident**

**Student using a table saw had three fingers severed when the dado blade caught on the wood and the wood slipped away from the blade exposing the hand to the saw. Student was not using a push stick and a proper guard was not in place. Safety tip: Students need to be instructed to use a push stick or feather stick and proper guards need to be installed and used.**

|               |  |
|---------------|--|
| Case No. 5    | <b>Hand Injury</b>   |
| Location      | Wood Shop  |
| Incident      | An 18-year old deaf student suffered serious injury to his left hand when he touched the unguarded blade of a circular power table saw that he was using.  |
| Circumstances | The student was directed by the teacher to trim some chest drawers. The operation was not normally done on chest drawers, however, and required the removal of the safety guard. The teacher showed the student two cuts and watched him make one or two as well. The teacher then moved about 15-25 feet away to work on another bench where he could keep his eye on the student. After a short period of time, the student let his attention drift and his hand struck the saw.   |
| Liability     | <p>The judge held that performing the operation with an unguarded saw was dangerous and that the duty of care required of the teacher was not met in these circumstances where the student had special needs. The judge reasoned that a higher duty of care is owed to such students because one cannot warn them quickly enough of what may be wrong. The responsibility of negligence was split two ways: teacher – 60%, student – 40%.</p> <p>On appeal, the Appellate Court overturned the trial judge's decision. On further appeal, the Supreme Court of Canada concluded that the Appeal Court's decision was incorrect. It applied a higher duty of care and supervision for deaf students who are subject to a greater risk of injury than other students who could be warned quickly enough to avoid such an injury.</p> <p>This case suggests that closer supervision may be necessary for special needs students who are more vulnerable to risk of injury because the usual precautions may be ineffective.</p> |

|               |   |
|---------------|---|
| Case No. 6    | <b>Hand Injury</b>  |
| Location      | Wood Shop   |
| Incident      | A 17-year old student lost the tips of three fingers on a jointer.  |
| Circumstances | The accident occurred while the student was taking Construction 11. At the beginning of the course, the teacher had provided students with a 15-page set of safety instructions detailing the rules for each machine. They were also given a textbook that included a description and illustration of a jointer and safety tips on its use. Throughout the course, the importance of safety was stressed. During demonstrations by the teacher of the various tools in the shop, including the jointer, the student had been absent due to illness. However, this same student passed all the tests administered during the course, including those on safety. There was also evidence to suggest that the student had used the jointer in a previous woodworking course, as well as about 15 times in the current course before the accident occurred. |
| Liability     | <p>The trial judge found that even though the student used the jointer in an improper fashion the teacher was negligent because he failed to ensure that the student received the necessary instructions required to operate the equipment safely through teacher demonstration.</p> <p>The Court of Appeal agreed with the trial judge in finding the teacher negligent. There was evidence to support the need for make-up instruction to students who were absent during teacher demonstrations.</p>   |

**Wood Shop Safety** (continued)

| Topic                        | Notes   | Student Information  |
|------------------------------|---|--|
| <p><b>Radial arm saw</b></p> | <p>Because the blade can pull itself forward, the area in front of the blade is always dangerous and hands should be kept clear. Consider painting this danger zone on the saw table.</p> <p>Rip cutting is hazardous on the radial arm saw. You might mention that it is possible, but suggest students use the table saw instead. Give a separate lesson on this operation, if needed.</p> <p>Eye and hearing protection are required.</p>  | <ul style="list-style-type: none"> <li>• minimum length, 300mm supported by a fence</li> <li>• make sure blade guard is in place and working properly</li> <li>• make sure all stock is stable and well supported</li> <li>• keep hands 150mm on either side of the blade; push small scraps clear with another piece of wood</li> <li>• check wood for knots and non-wood material such as gravel, nails, etc.</li> <li>• anticipate a tendency of the saw to pull itself into the cut</li> <li>• when finished, lock the carriage behind the fence</li> <li>• never cross your arms when using the radial arm saw</li> <li>• do not cut round or irregular stock unless it is carefully secured</li> <li>• support the ends of long boards</li> <li>• if a stop is being used, hold the wood against the fence between the stop and the blade</li> <li>• eye and hearing protection are required</li> </ul>  |
| <p><b>Table saw</b></p>      | <p>“By far and away, the table saw is involved in more serious hand injuries than any other woodworking tool or machine. . . Hardly anybody, however, reported a serious table saw accident that occurred with a blade cover, kickback pawls and splitter all in place.” (<i>Fine Woodworking</i>, #42, p. 76)</p> <p>The board must be larger than the chord of the blade that is exposed.</p> <p>Trying to use the fence when crosscutting is a common cause of accidents on the table saw.</p> <p>The stock outside the blade rarely, if ever, kicks back.</p> <p>Authorize and supervise students who remove guards, splitters or kickback fingers.</p> <p>Eye and hearing protection are required.</p> | <ul style="list-style-type: none"> <li>• adjust blade to 5mm above stock</li> <li>• minimum length: 300mm</li> <li>• use a push stick, especially if your fingers will come within 100mm of the blade</li> <li>• stand to the side in case of kickback</li> <li>• use the fence for rip cutting only, never for crosscutting</li> <li>• use a mitre gage or cross cut jig for crosscutting</li> <li>• always control the stock between the blade and the fence until it has passed the blade</li> <li>• shut off the saw, then reach around the blade, never over it</li> <li>• do not make freehand or unguided cuts; always use either the fence or the mitre gauge</li> <li>• always use the guards, splitter and kickback fingers unless you have authorization to remove them for special circumstances and then reinstall them immediately</li> <li>• eye and hearing protection are required</li> </ul> |

## Information Sheet

**TABLE SAW SAFETY**

|   |
|---|
| <ul style="list-style-type: none"> <li>▪ Prior to use, ensure all guards, anti-kickback fingers and splitters are in place and functional.</li> </ul>   |
| <ul style="list-style-type: none"> <li>▪ Always use the guards, splitter and anti-kickback fingers <b>unless you have authorization to remove them</b>. Under special circumstances, e.g., dadoing or undercutting, and then they are to be reinstalled immediately.</li> </ul>           |
| <ul style="list-style-type: none"> <li>▪ Set the blade height to clear the wood by about 5mm. If you set it higher, you may create a hazard. Only set it lower for special circumstances such as undercutting or partial cutting.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Never cut stock that is less than 300mm long. Small stock is dangerous because: a) it brings your fingers closer to the blade and, b) it can kick back more easily because it is lighter.</li> </ul>   |
| <ul style="list-style-type: none"> <li>▪ Always use a push stick if your fingers will come within 100mm of the blade.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Wood can 'kick back' out of the table saw. In fact, this is one of the most common table saw accidents. Stand to the side when rip cutting so that you won't get 'kicked.'</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ When cutting on the table saw, always support the wood on its longest side. Use the fence when rip cutting, and use a miter gage or cross cut jig for cross cutting. Never use the fence when crosscutting—you will have an accident!</li> </ul> |
| <ul style="list-style-type: none"> <li>▪ Always push the stock between the blade and the fence until it has passed the back of the blade; otherwise, the wood inside the fence could easily be caught by the blade and kicked back.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ If you are taking stock off the back of the saw, reach around the blade, not over it. If possible, have someone help you or let the stock drop to the floor. Never reach around or over a running saw. Shut it off first.</li> </ul>             |
| <ul style="list-style-type: none"> <li>▪ Never make free hand cuts on the table saw. It is too easy to twist the wood or pinch the blade. Always use either the fence or the mitre gauge.</li> </ul>  |

**H**ands are the most vulnerable part of the body.

**E**yes and ears also need protection.

**A**sk when you are not sure!

**D**ress safely using the appropriate protection.

**S**afety devices must always be used as intended.

**UP!**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Test

## TABLE SAW SAFETY

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Class: \_\_\_\_\_ Section: \_\_\_\_\_

1. How high should the blade be set above the wood? \_\_\_\_\_
2. What is the minimum length of stock that should be cut on the table saw? \_\_\_\_\_
3. You must use a push stick if your fingers will come within \_\_\_\_\_ of the blade.
4. Where should you stand when rip cutting on the table saw?  
\_\_\_\_\_
5. What device should you use to guide the wood when:
  - a. rip cutting \_\_\_\_\_
  - b. cross cutting \_\_\_\_\_
6. Which of the following conditions would produce kickback: a) the piece of wood between the blade and the fence, or b) the wood outside the blade? \_\_\_\_\_
7. Is it okay to reach over the blade? \_\_\_\_\_
8. Why is it dangerous to make freehand cuts on the table saw?  
\_\_\_\_\_  
\_\_\_\_\_
9. What three safety devices should always be used when working with a table saw?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_