

Processing Wood – Breathing the Air in a Woodshop (4 of 4) Avoid Creating a Potential Hazard -- Sawdust

Info in red font is for the benefit of the teacher (notes and ideas for differentiated learning etc). Delete text in red font from the copies that are distributed to students.

In a document / template that is intended to be "filled in" by students for assessment / evaluation purposes, the Version History table can be retained for students to use. Making an improved version is great learning.

Version History:

V #	Date	Author	Short Listing / Description of Changes
1	July 16/12	D.B. McCowan	Initial Version -- uploaded to OCTE Safety Portal
2			

Parts

- 1 Expectations; Introduction; Review; Sample Situation; Hardwood vs Softwood
- 2 Thinking -- Finding Information: Properties of Wood Species
- 3 Observation and Research: Processing Wood Using Tools; Sanding and Limitations
- 4 Integrate New Knowledge With Old; Assignment for Marks**

1 Integrate New Knowledge with Some of Your “Old Knowledge”

Note to Teacher Regarding the table below:

-Delete answers / feedback in red font prior to distribution to students – take up afterwards
-This learning activity could be in the form of a quiz in an on-line learning management system such as Moodle. Moodle also has Discussion Forums for the short answer / class discussion questions.

Earlier in the course, you studied some of the general principles of shop safety such as the shop dust extraction system and tidiness. And you have now studied wood dusts and how they are generated. There is some critical and creative thinking involved in the following practice quiz... how do you protect yourself and others? You will find that a little more on-line or library research will be required in order to answer all of the questions.

#	Question	Answer / Feedback
1	If you inhale too much wood dust, respiratory tract irritation may result. (T/F)	True Seriousness depends on the wood species and particle sizes.
2	There is no need to turn on the shop’s dust extraction system if only five students are sanding wood by hand. (T/F)	False Dust collection / extraction is important for any wood processing operation.
3	Safety glasses are not required if you are cutting wood with a handsaw. (T/F)	False Everyone must wear safety glasses in the shop at all times regardless of what they are doing.
4	Basswood sawdust is not shown to be hazardous	False

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#	Question	Answer / Feedback
	because humans are immune to it. (T/F)	There possibly simply has not yet been a thorough-enough study on the effects of basswood sawdust. Too much of any dust is not good for the human body.
5	If you are sanding wood by hand, you should: a occasionally knock the sawdust from your workpiece onto a damp rag b blow the sawdust off your work with compressed air c blow the sawdust off your work with your mouth d gently sweep the sawdust off your work into a dustpan e both a and d are advisable	e Do not do anything to make sawdust airborne again. Using compressed air for cleanup of any kind is very bad practice and unsafe.
6	You are using the big floor-mounted disk sander to sand a piece of pine. Your shirt is quickly getting white. What do you do? a Tell the teacher to turn on the dust extractor b Confirm that the dust extraction system is running and that the sander damper is open c Call the teacher over because there may be a problem with the dust extraction at the sander itself d Put on a shop coat e Nothing because pine is just a mild irritant	c Dust extraction depends on suction very near to where the dust is being created. If there is a blockage somewhere inside the machine, there may not be sufficient suction where it is needed. Your shop policy should be to turn on the dust extractor as soon as you enter the wood shop. It is your job to open the machine damper before starting the sander. These should both be given right up-front.
7	You have asthma. What is your responsibility? a Tell the teacher about your asthma and bring in a note from your parents and doctor listing concerns and perhaps some basic limitations on your shop activities b Take the lead to define possible safe shop activities for yourself and to specify your own personal protective equipment. Consult with the teacher. c Be accountable for bringing, maintaining and wearing your own personal protective equipment in the shop d All of the possible responses	d You want to be part of deciding how your education takes shape – you want to help define what is important to you and how you will go about achieving your educational goals. Without your dedicated involvement in this very serious safety issue, the teacher will be inclined to advise the main office and guidance that, for safety reasons, you should not be taking this course.
8	Which of the following is not a valid “Administrative Control” with respect to sawdust in a school shop? a Preventing students from sanding half an inch off the end of a board to make it fit b Hanging optional dust masks beside the sander c Daily checking the suction at the disc sander to ensure that the dust extraction system is functioning properly d Training directed at processing a piece of wood so as to achieve minimal generation of sawdust	b To be useful, a dust mask must be worn. The matter of wearing required personal protective equipment is not generally considered an Administrative control. When cutting a board, cut it very slightly oversized. Do not plan on sanding off half an inch of wood – cut it accurately the first time so that sanding is minimal.
9	It is good practice to use a compressed air line to blow sawdust off your clothes. (T/F)	False Compressed air is very high energy and will make the dust on your clothes airborne again. Compressed air can

#	Question	Answer / Feedback
		even enter the bloodstream. Notwithstanding filters, a small metal particle could break off from inside the pipe and shoot towards you. Using compressed air to clean up is even illegal in some areas. Compressed air is compressed by a machine with rotating parts that must be lubricated. Some of this lubricating oil will be suspended in the air stream and, notwithstanding filters, you may get oil stains on your clothes.
10	A properly sized and functioning dust extraction system for a wood shop is an example of an engineering control of a shop hazard. (T/F)	True
11	A respirator is better than a disposable dust mask because: a the dust mask has an elastic band that does not provide a tight fit on the face b a respirator has a particle filter that can be replaced when necessary c a respirator fits the face more tightly d all of the possible responses	d
12	You are partly responsible for your personal safety in the shop. (T/F)	True You and the teacher and the school all have a key role in your personal safety.
13	Carving a very small piece of wood is advisable because it won't take you long to get the job done. (T/F)	False Of course, "small" is relative. But most significantly, the block of wood being carved must be large enough to either clamp or securely hold onto as you carefully whittle (away from your body). When finished your shape, you can cut off the portion of the block that you were holding onto (and then do the final tuning).
14	<i>In a wood shop it is acceptable to have and to use a high speed grinder for sharpening cutting tools.</i> Do you agree or disagree with this statement? Explain your rationale for your position. Describe any conditions that you put on your position – for example what administrative controls should be imposed? Write 70 to 100 words in your answer.	Short answer / followed by discussion in class or in an on-line Discussion Forum such as Moodle Some Notes: Sharpening a chisel could cause high energy sparks and possibly ignite fine sawdust in the air if the concentration is in the right range. It might be wise to move the grinder to a separate room that is isolated from the wood shop.

2 Assignment – Sawdust MSDS – 100 Marks (Thinking & Communic)

The safety issues around sawdust are more significant than you thought!

Choose a native Ontario species of commercial wood that you might like to work with. You are to design a two-sheet (11"x17") poster that may be posted on the shop wall. In the context of sawdust for the wood species that you choose, your poster must adequately address what you perceive to be the eight most significant sections of a standard MSDS. You are to use between

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200 and 300 words in your poster to inform and warn students about the hazards and risks of sawdust. Include the applicable WHMIS symbol on your poster.

Your poster will be graded against Written_Report_Rubric.doc. (100 marks)

Five of the eight major MSDS issues that must be addressed are:

- Hazard identification
- First aid measures
- Fire fighting measures
- Exposure controls and personal protection
- Toxicology information

3 Safety Reminder

Minimize the creation of sawdust. Clean up sawdust immediately after completing your task.

4 Peer Assessment

NOTE: In the feedback, the Peer Assessor must “make the student think” – not give the student the answer! Be sure to include comments justifying the assessment value that you are giving. Peer Assessor must put his / her comments in red font. Hand in both your version 1 with peer comments and your improved version 2.

Assessor’s Name and Additional Notes:

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