YW General Wood Shop Safety I Unit 1a

Eye & Face Protection

When cutting and working with wood, you always run the chance of being exposed to flying particles that can hit either your eyes or your face.

Any time you are working with a chemical product that might splash into your eyes--as when you are putting a finish, such as oil or urethane on your project--you need to wear safety glasses.

Safety glasses

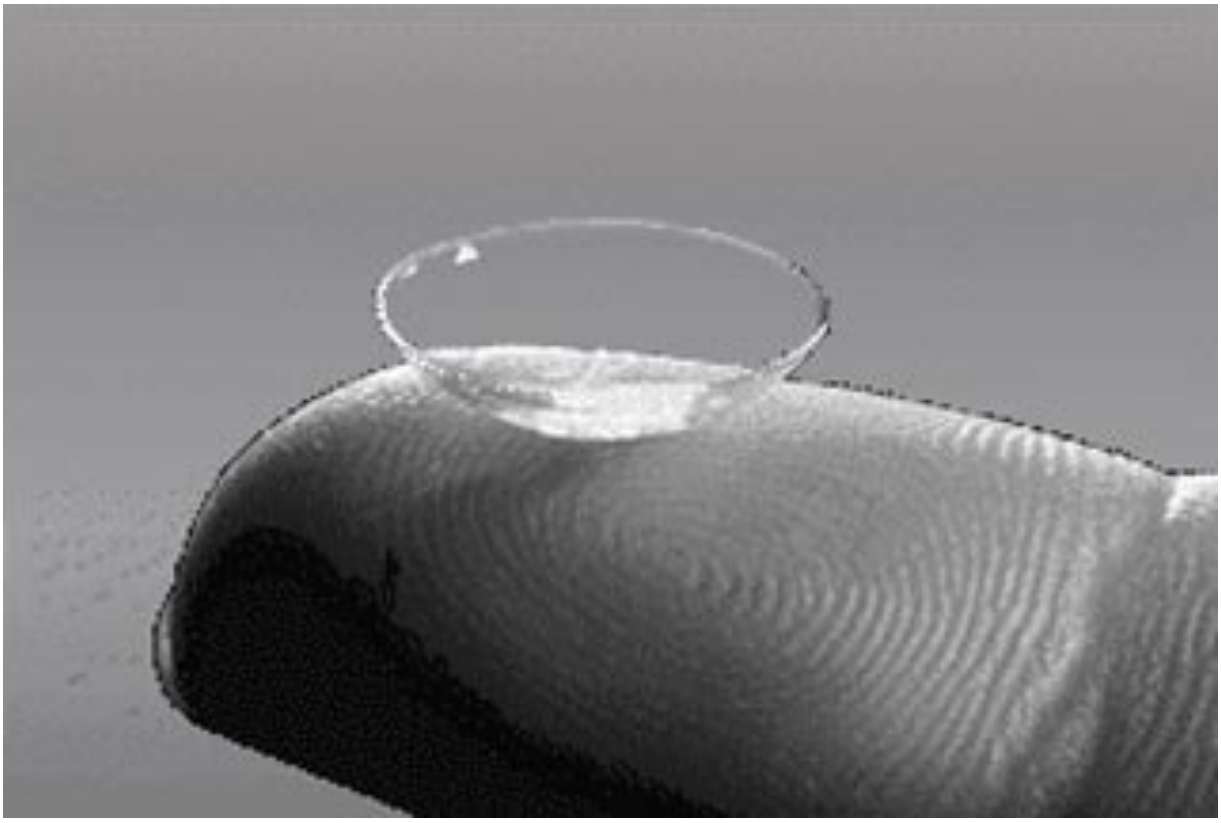
Safety glasses are the easiest type of eye protection to wear. Safety glasses should cover both the front and sides of your eyes. They protect against flying objects such as particles and dust.

Goggles

In addition to protection from particles and dust, goggles provide additional protection from splashes of liquids, because they fit snugly on your face. For this reason they protect your eyes better than safety glasses.

Face shields

Can be worn with safety glasses or goggles. Face shields are adjustable and guard your face against both flying objects and splashes.



Contact lenses and prescription glasses

Contact lenses and prescription glasses will not protect your eyes. Special safety glasses and goggles are available that can fit over your regular prescription glasses. Let your teacher know that you need safety glasses that fit over your regular glasses.

If you wear contact lenses, fine wood dust might get under the contact lens and injure your eye. Wearing goggles will help keep dust from getting under your contact lenses.

YW General Wood Shop Safety | Unit 1b

Foot Protection, Clothing, Jewelry, Hair

Why is it so important to wear the right kind of clothing when you are working in a wood shop?

Anytime you are wearing something loose, there is the possibility it could become tangled in your machine. This includes not only your clothing, but also necklaces and other jewelry.

People have been seriously injured when their hair has gotten wound around a fast-spinning tool.

Open-toed shoes (like sandals) do not offer enough protection for your feet.

Clothing

Roll long sleeves up above the elbow. This will keep your clothes clean and prevent the material from getting caught in the tool you are working with.

Foot Protection

If you don't have the right shoes or boots, you could jam or stub your toe on equipment. Your toes could also get crushed or cut by falling objects. Even a small object, no heavier than 7 pounds, can injure your foot when dropped from waist height.

To prevent these injuries NEVER wear shoes with open toes (like sandals of any kind) while working in the shop.

Shoe Soles

Make sure the soles of your shoes are thick enough to prevent nails from puncturing them. On construction and building sites, it is easy to walk on a board with a nail sticking out of it. If you were just wearing tennis shoes, that nail could puncture your foot.

Steel Toes

The best way to protect your feet from crushing is to wear boots or shoes that have cap built into the shoe, which covers the toes. These are called steel-toed shoes. These are required on many construction and building sites because the risk of foot injuries is so high.

Jewelry

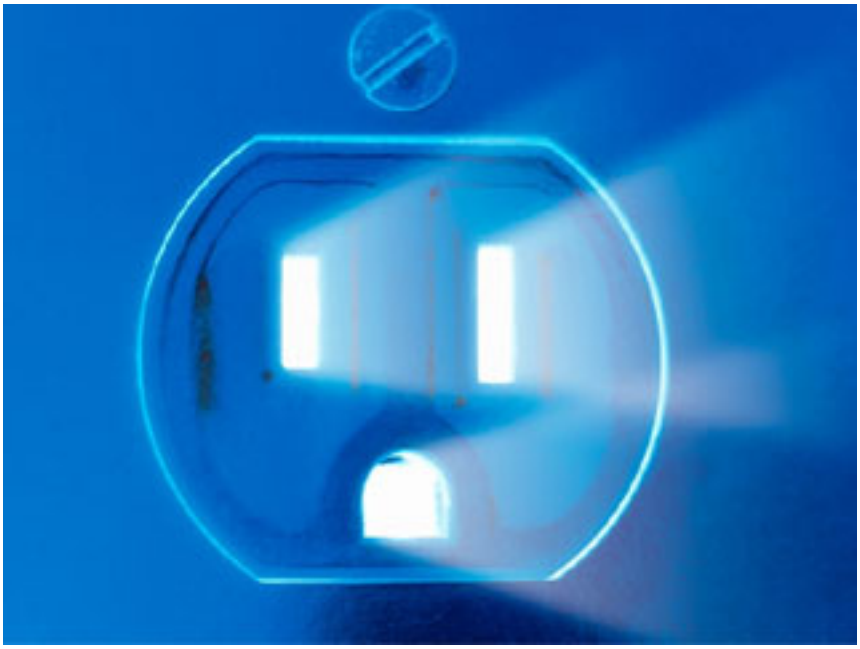
If you are wearing a loose necklace, either tuck it into your shirt or take it off and put it into your pocket while you are working. Take off rings and put them in your pocket to prevent your fingers from getting caught in the moving equipment.

Long hair

Tie it back so it can not hang over the tool you are working with.

YW General Wood Shop Safety I Unit 1c

Electrical Hazards



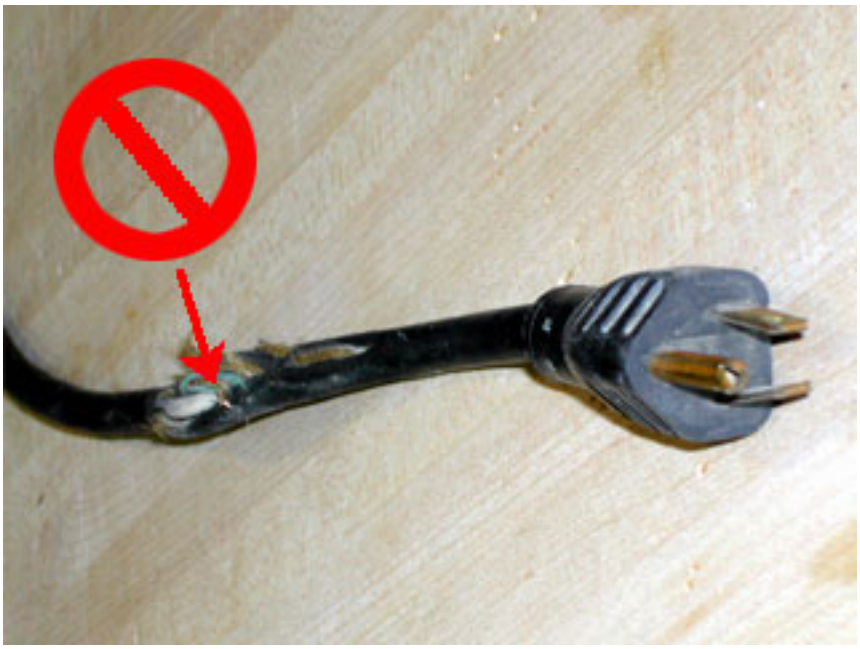
Power equipment, hand tools, and electrical cords are commonly found in woodworking shops. Because even small electric shocks are dangerous, it is important that you are familiar with the hazards. These include electrocution, fire, or explosions.

Grounding and Shock

Electricity is always trying to get to the ground. If something that conducts electricity (like your body) gives electricity an easy path to the ground, it will take it. So if you touch an electric circuit and the ground at the same time, you will become electricity's easiest path. Electricity will flow through you, and you could be seriously hurt or killed.

In a serious shock accident, the path that the electric current takes through the body gets very hot. Burns occur all along that path, including the places on the skin where the current enters and leaves the body The tools you work with in the shop (just like appliances at home) have insulated coverings and cords to prevent your body from contacting the electricity inside.

You can never tell when contact with electricity will be fatal, but it will always hurt. Electric shock can cause muscle spasms, weakness, shallow breathing, rapid pulse, severe burns, unconsciousness, or possibly death.

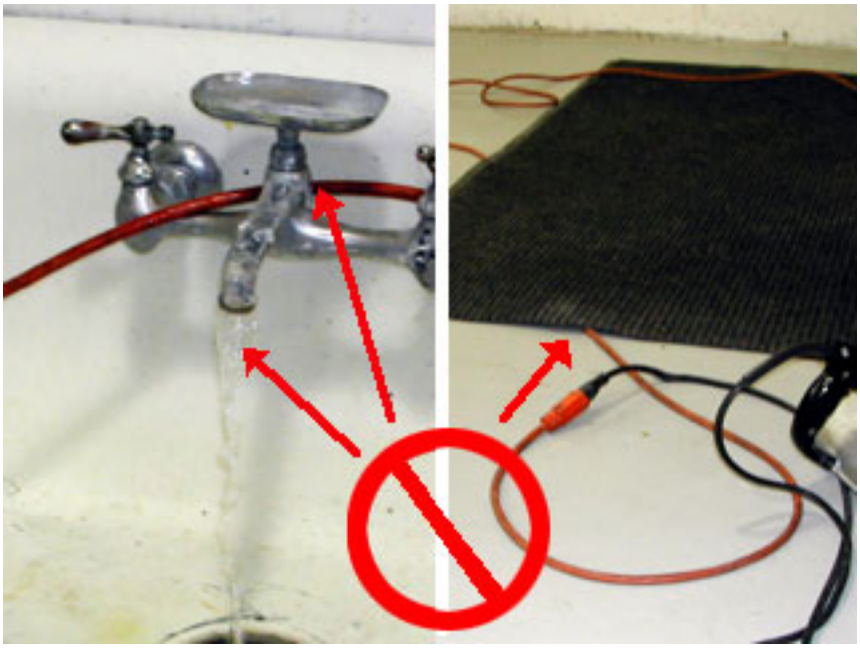


Cord and Plug Hazard Awareness
If you see crack, frays, or holes in plugs, power cords or extension cords – DO NOT USE until replaced or repaired by your teacher. Worn cords can cause a fire, shocks, or short circuits.

Never break off the third prong from a three prong plug, to make it fit in a two prong outlet. It is essential for proper grounding purposes and can result in an unsafe situation.

Never overload an outlet with too many plugs. Plugging in too many cords is a fire hazard.

When removing a plug from an outlet, pull it by the plug, not the cord. Pulling the cord will wear it out quickly and create a shock hazard.



Keep cords away from heat and water. Heat and water can damage the insulation and create a shock hazard.

Don’t run cords under floor mats, where they are a fire hazard.

YW General Wood Shop Safety I Unit 1d

Ergonomics

What is Ergonomics? It is the science and study of "work": fitting the task to the worker. Designing and arranging things so that people can use them and do their tasks safely. Learning how to work smart will help keep you from having the kinds of physical injuries that can happen over time with conditions like overuse, excessive force and repetition.

Your body is like a tool that you use in the shop - care for it and use it wisely and it will last a long time. Put too much strain on it and damage will result.

Ergonomics became popular during and after World War II when too many pilots crashed planes because they hit the wrong controls and became tired and uncomfortable sitting in cockpits that did not fit them very well.

Scientists discovered that by designing the cockpit to fit the pilots better and putting the controls in more convenient locations there were fewer plane crashes. Nowdays ergonomics applies to all kinds of work, trying to make it safer and less stressful on the body.

Why is ergonomics important in a wood shop or the building trades?

Because you will be spending a lot of time working with tools and equipment that can be hard on your body. Having an understanding of the risks to your body will help you avoid getting serious injuries to your back, arms, hands and legs - injuries that are common in this type of work.

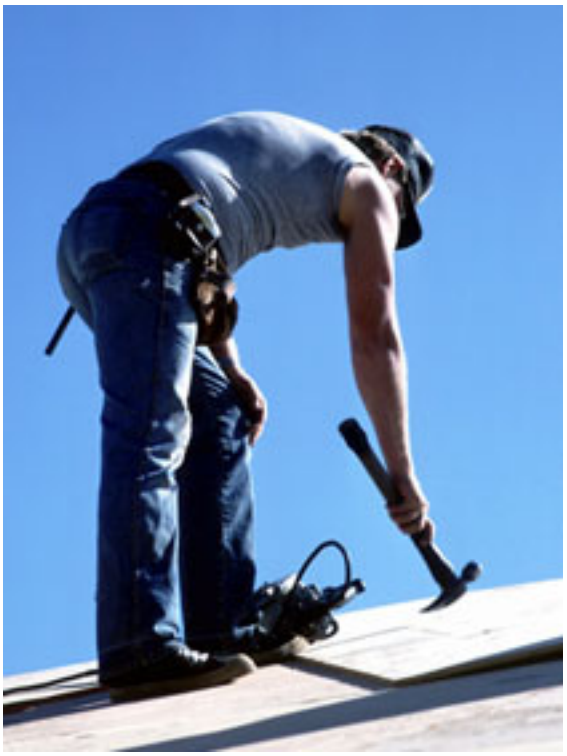
There are six risk factors - conditions that can increase your chance of getting injured -
that you need to be aware of:

1. Vibrating tools or machines.

Holding tools such as sanders or chainsaws that vibrate, or sitting in trucks or other kinds of equipment that vibrate, such as forklifts.

2. Repetitive movements.
Repeating similar movements with the same muscles for long periods of time, like hammering, sawing, or using a screwdriver.

3. Excessive force.
Lifting, pressing, gripping, pinching, pulling or pushing more than you can handle.



4. Awkward postures.
Bending, twisting, or extending your back, neck, shoulder, wrist, or knees. Roofing is an example of a job that often requires this kind of awkward posturing.

5. Contact stress.
When the pressure or jolt from a tool or machine creates a concentrated force on the body. Like kneeling, pounding with your bare hand, resting your forearm on the edge of a table, or having the handle of a screwdriver digging into the palm of your hand.

6. Temperature extremes.
When a worker has to work in very hot or very cold temperatures. Both conditions can make your muscles get tired sooner.

YW General Wood Shop Safety I Unit 1e

Fire Safety

Many things in a wood shop could fuel a fire. Because sawdust, wood chips, flammable solvents and oils are combined
with tools that can generate heat and sparks, the possibility that a fire could occur in a wood shop is very real.

Keeping a Clean Work Shop

Fortunately, good work practices can do a lot to prevent fires from happening. One of the best things you can do is keep the shop clean. By regularly cleaning sawdust from tools, work benches and floors, you eliminate a fuel source.

Handling and Storing Flammable Liquids

If you are working with flammable products such as solvents or stains, always make sure you keep the containers closed when you are not pouring liquids out of them. When you are finished working with them, make sure the containers are stored with their lids closed inside of a flammable storage cabinet.

Safe Handling of Waste Rags

If you have waste rags covered with oils or solvents, make sure you put them in the metal safety container at the end of class.

Electrical Safety: Avoid Shorts and Sparks
If power cords or extension cords appear to be damaged stop using the cord or its tool immediately and report it to your teacher. This will prevent sparks if there is an electrical short.

Fire Extinguishers

A fire extinguisher is just a storage container for an extinguishing agent such as water or chemicals. It is designed to put out a small fire, not a big one. The first thing you must do in the event of a fire is immediately notify your teacher. He or she will direct the response.

Make sure you receive training on the proper use of a fire extinguisher. An extinguisher is labeled according to whether it should be used on fires involving wood or cloth, flammable liquids, electrical, or metal sources. Using one type of extinguisher on another type of fire can make the fire much worse (for instance, never use a water extinguisher on an electrical or a grease fire!) So learn how extinguishers are labeled and use

Traditionally the labels A, B, C, or D have been used to indicate the type of fire on which an extinguisher is to be used.

Recently, pictures have come into use to show what type of fire on which an extinguisher is to be used. Pictures with red slashes are fires on which the extinguisher is not to be used. For example, on a class “A” - or water - type, the following symbols would appear:

YW General Wood Shop Safety I Unit 1f

Shop Clean-up

Clutter
Don’t allow clutter to accumulate in the shop area. Clutter provides areas for wood dust to accumulate and not get cleaned up. Clutter can also get into your way while you are working, increasing the risk of an accident. On the floor it can cause tripping hazards.

Cleaning Work Benches

When cleaning sawdust from tools and work benches, do not use compressed air or your hands. Compressed air could blow small pieces of wood or sawdust into your eyes. If you use your hands, you could get cuts or splinters. The best way to clean equipment and bench tops is to use a hand brush.

Cleaning the floor

At the end of class, make sure the floor is swept and the waste sawdust is disposed of properly. To avoid injury from inhaling or handling wood and/or metal splinters, always use a brush or broom to clean the floors of saw dust. If any liquids are spilled on the floor, let the teacher know right away for guidance in immediately cleaning it up.

Equipment Storage

When you are finished for the day, place your project in the storage area,

This will help protect your work and keep it from getting in the way of other students.

Tool Storage

Return all tools to back to their assigned storage areas.

YW General Wood Shop Safety I Unit 1g

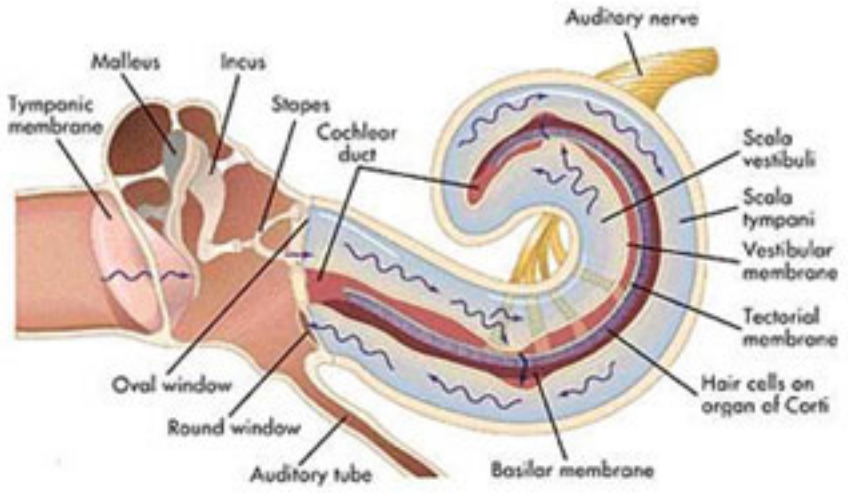
Hearing Protection

You may not think of noise as a danger, but if you work in a wood shop it can be a serious problem. In fact, noise is one of the most common workplace hazards.

Two kinds of noise can harm your hearing:

1. A noise that is too loud for your ear to handle. An example is a loud impulse noise, like an explosion.

2. Loud continuous noises of different loudness levels (like what is generated in a wood shop) over an extended period of time.

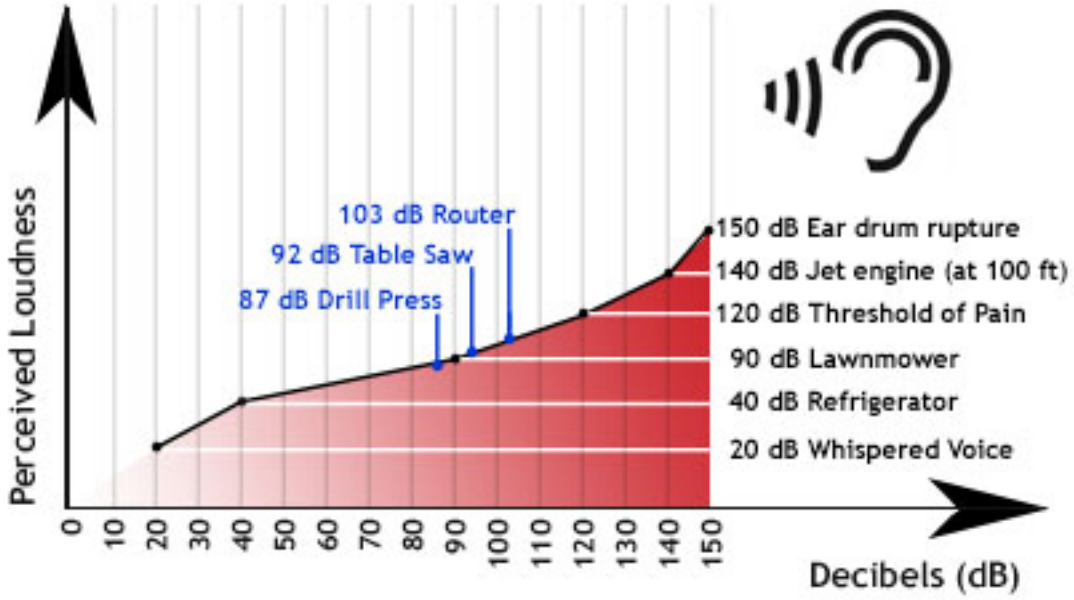


How hearing loss happens

The microscopic hair cells inside your ear can be damaged or broken from exposure to noise vibrations. If enough of these hair cells become damaged, the result is permanent hearing loss.

How loud is too loud?

The loudness of sound is measured in units called decibels, symbolized as dB. The softest sound that a person can hear is about 1 decibel (or 1 dB). A whispered voice is about 20 decibels (20 dB). If a sound reaches 85 dB or stronger it can begin to cause permanent hearing damage.



Compare the intensity of some sounds you are familiar with to sounds made by certain wood working tools you will find in the shop.

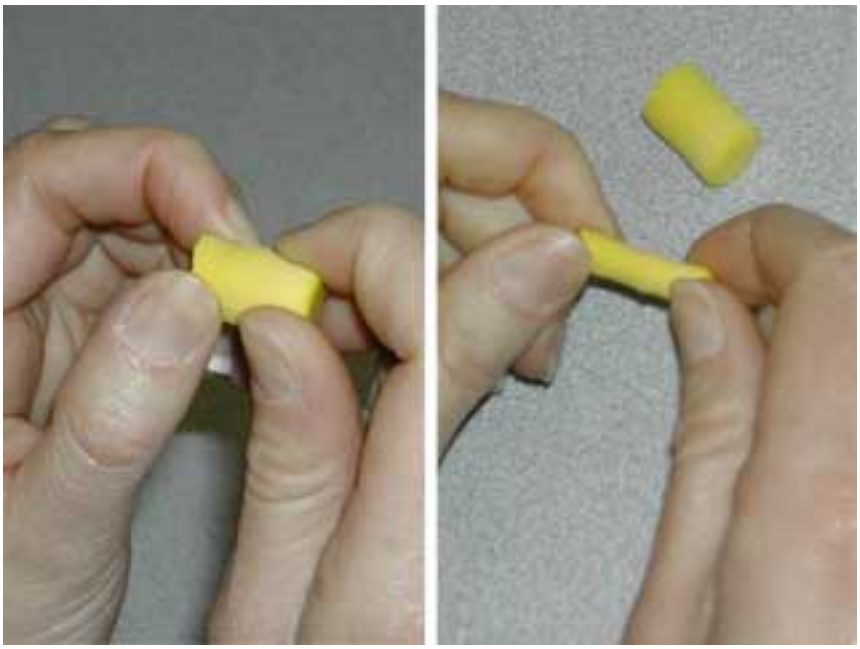
How can you protect yourself?

There are two ways to try to protect your hearing when working with loud equipment:

1. controlling the noise at the source by using equipment designed to be more quiet or by adding shields around the loudest pieces of equipment in the shop to help absorb or block the noise.
2. if new equipment or the use of shields is not possible or doesn't reduce the noise enough, a second method is to wear personal hearing protection equipment. The goal of hearing protection equipment is to reduce your exposure to harmful noise, while still allowing you to hear machine warnings and voices.

Earplugs

These are made of light and comfortable material that can fit into the ear itself. They range from
disposable foam cylinders to customized plugs that are molded to fit your own ear.



How to insert foam earplugs

If Foam earplugs are available in your shop - get a pair and try putting them in by following these steps.

Step 1

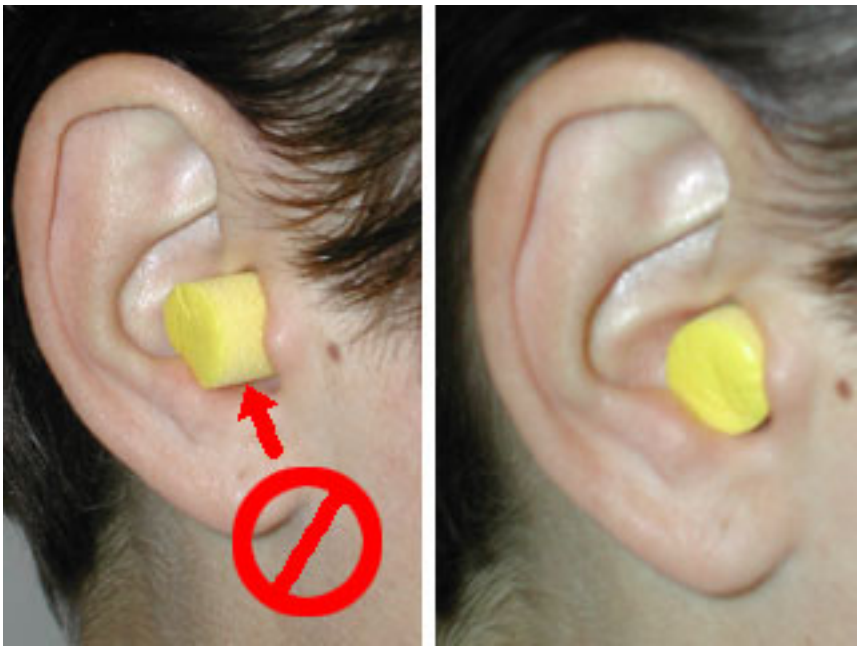
With both hands roll the round side of the plug between your thumb and finger. Slowly roll and compress the plug into a thin cylinder with no creases or folds in it.

Step 2
Once the earplug is compressed, with your opposite hand pull the outer ear out and up. Now insert the compressed plug into your ear canal as far as is comfortable for you. You don’t want to go too far.

Step 3

With your fingertip, gently hold the plug in place until it begi

ns to exp and and bloc k the nois e.

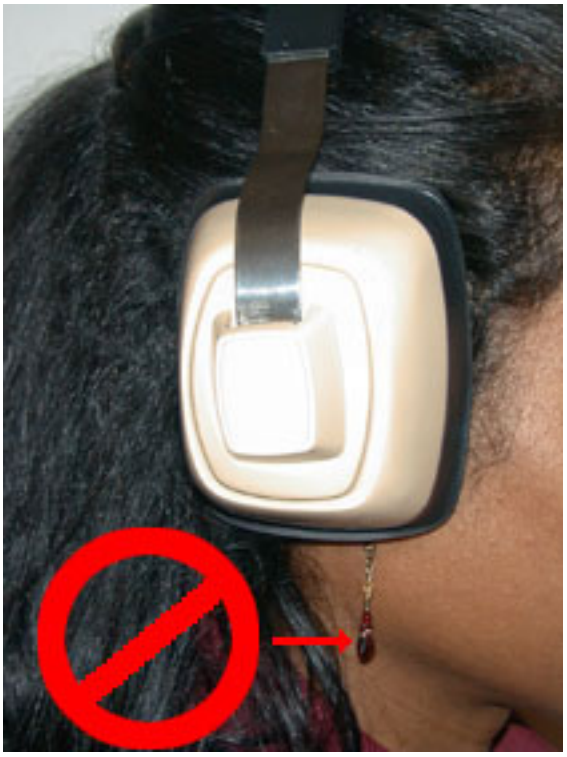


Step 4
When finished working, remove the plugs from your ear. If you are going to use the plugs again, keep them clean by washing them in mild soap and rinsing them thoroughly in water. If they change color or shape after being washed throw them away and use a new pair of plugs.

Earmuffs

These are cushioned and cupped ear coverings attached to a headband. Earmuffs come in a wide variety of sizes and kinds, each made specifically for certain noise levels and work environments.

In areas with extreme levels of noise, it may be necessary to wear both earplugs and earmuffs at the same time.



When wearing earmuffs, be sure you have a perfect seal between the skin around your ears and the earmuff cushion. Hair, jewelry (like earrings) and glasses can interfere with forming this tight seal.

YW General Wood Shop Safety I Unit 1h

Lockout/Tagout

Lockout and Tagout refers to the process of padlocking the power source on a piece of electrical equipment in the OFF position. This lock prevents you from turning on the power. This piece of equipment is then tagged with a card, indicating that it is not to be used until it is repaired.

This procedure is necessary so that someone can not accidentally turn the equipment ON while it is broken and potentially injure themselves or others. Lockout and tagout should always be done on a piece of equipment before any repair is started.

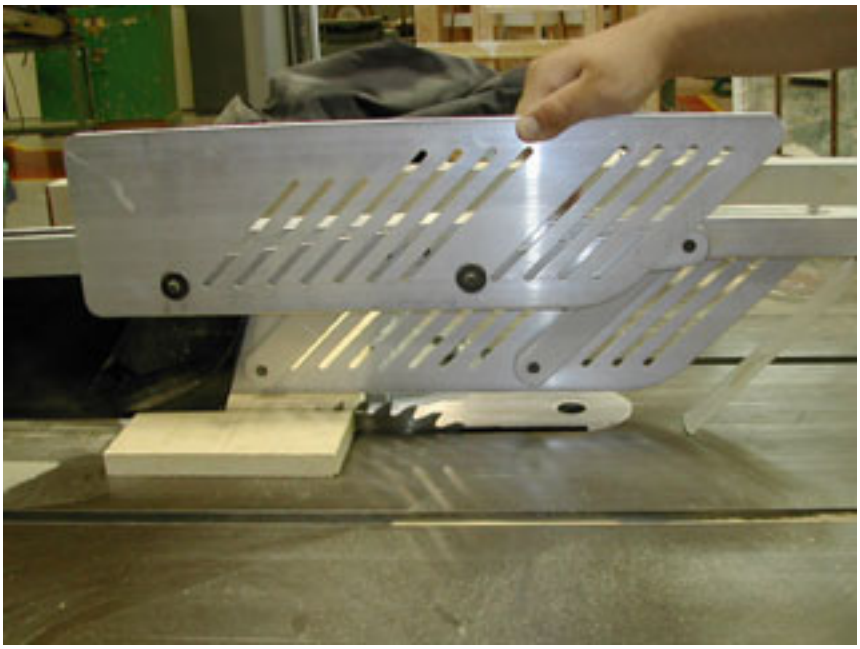
If you see a piece of electrical equipment in your shop that has a tag and a lock on the power source, it means the equipment is damaged and needing repair. After the repair has been completed, the tag and lock will be removed. Only your teacher can unlock a piece of damaged equipment.

YW General Wood Shop Safety I Unit 1i

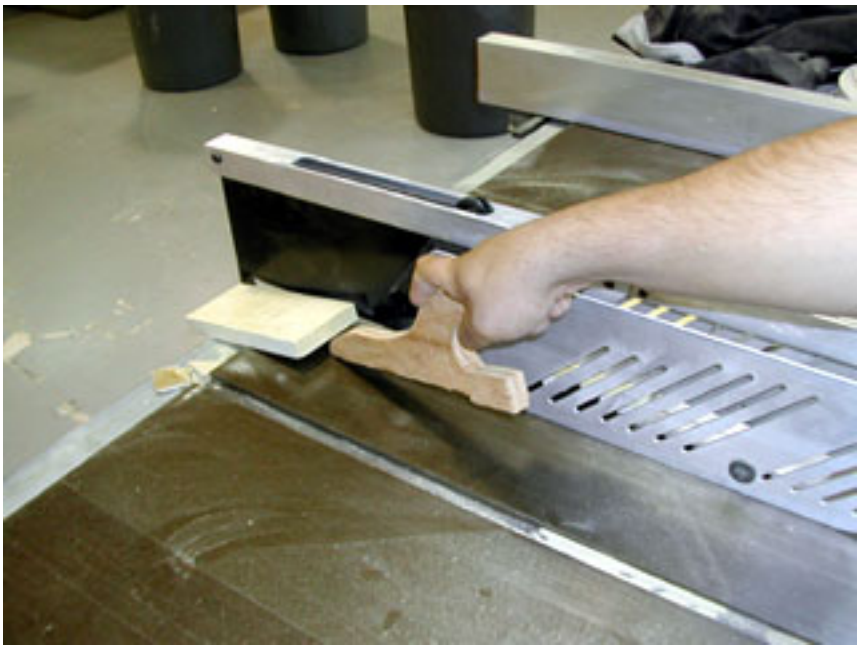
Machine Guards

Because most of the equipment found in a shop has sharp blades moving at high speeds, the potential for severe injuries is high.
For this reason an essential part of most pieces of equipment in a shop are the machine guards.

Modern guards provide protection without interfering with the tool's ability to do the job you want it to do.



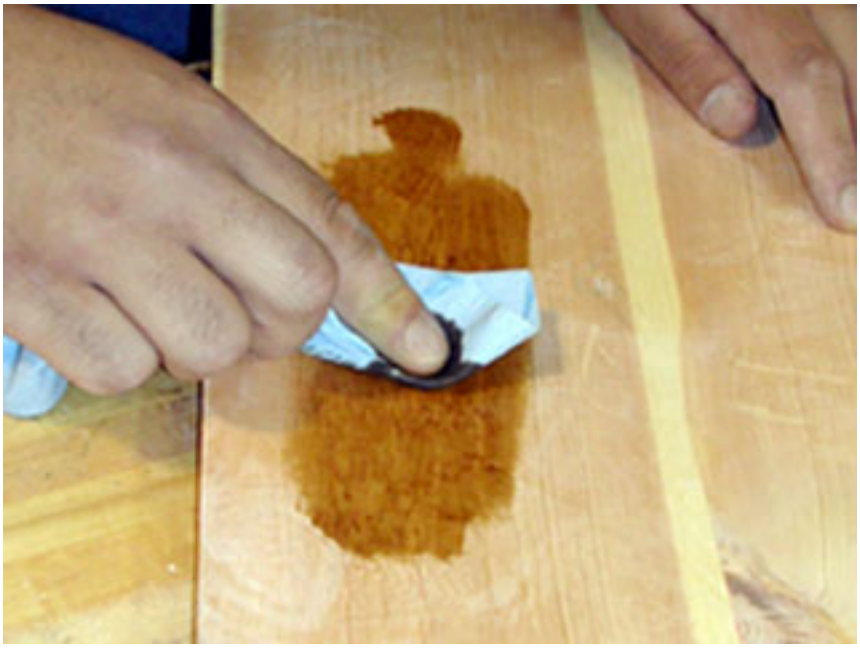
Properly functioning guards provide a barrier between the person operating the tool and the fast moving blades. They also help contain sawdust, wood chips and other debris that can be thrown towards the person operating the equipment.



Machine guards by themselves can’t protect you. In order for them to work properly requires that you set up and use the equipment in a safe manner.

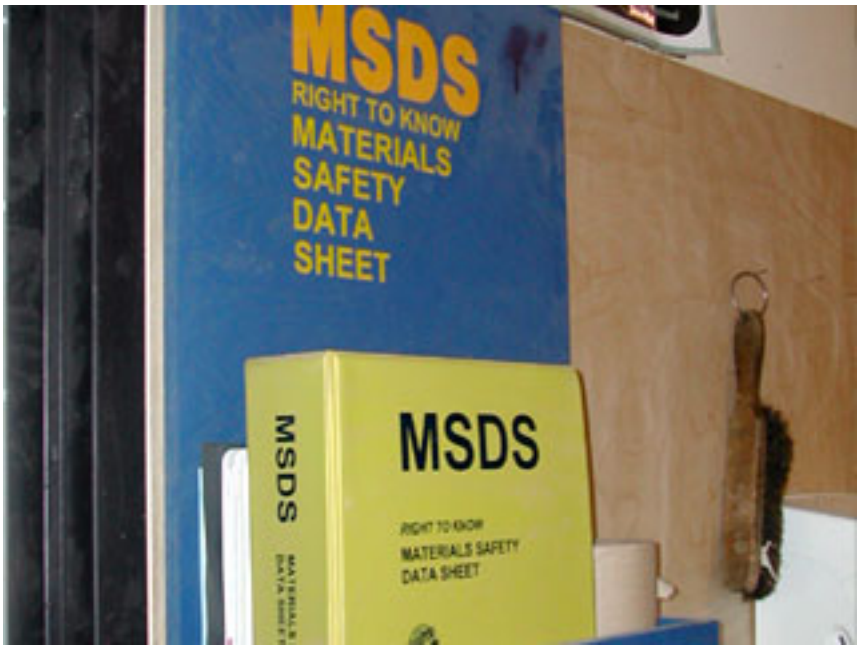
YW General Wood Shop Safety I Unit 1j

Hazardous Chemicals and Waste



When you finish your class project, you will possibly go on to use various chemical finishing products to protect the wood and enhance its look.

While some of the chemical products you use in a wood shop are relatively safe to work with (such as waxes and wood fillers), others can be hazardous to you and to the environment if they are not handled and disposed of correctly.



Where to get information - Understanding Labels and Safety Data Sheets
Before you start working with an unfamiliar chemical product, read the label - it will summarize potential hazards. You should also look up the Safety Data Sheet, (which is often called a Materials Safety Data Sheet or MSDS). An SDS will give you more detailed safety information about the chemical product than you will find written on the label.

If you have not worked with a chemical product in class before, make sure it is OK with your teacher. Here are some examples of the types of hazards you may encounter, their labels, effects and examples in a wood shop:

Flammables
These products could catch fire if they are exposed to an ignition source such as high heat, flames or sparks. When working with these materials, make sure you are working in a fume hood or spray booth, which will safely vent the flammable fumes outside.

When you are through working with these products, store them in containers with lids that can be sealed tight, and put them away in a cabinet for flammable materials.

Examples of flammable products you will find in a shop:
Solvents (Mineral spirits, lacquer thinner, turpentine, denatured alcohol, oil based paints, wood stains, varnish, shellac, lacquer)

Toxic Materials

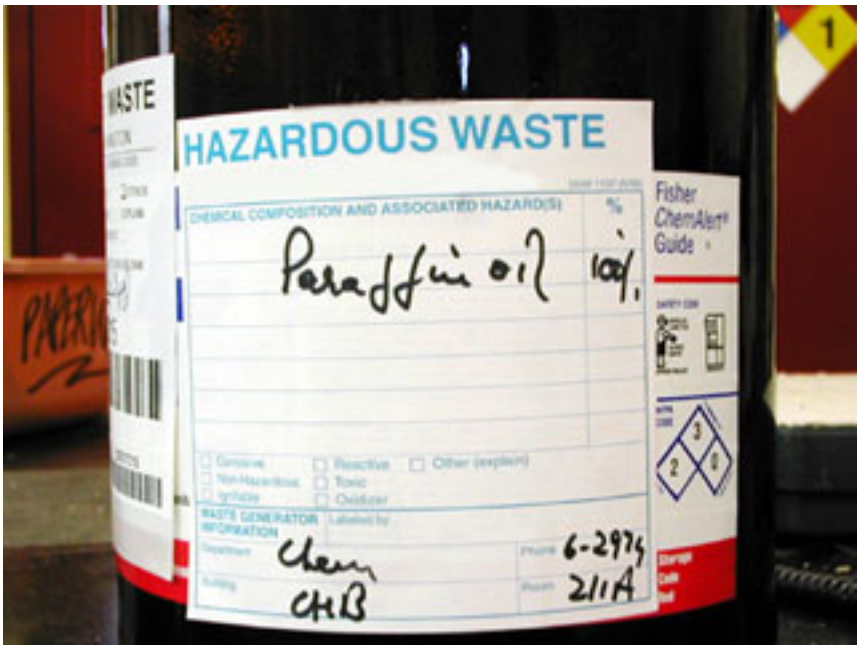
Different types of toxic materials can affect you in a variety of ways. Symptoms can range from headaches and feeling dizzy to more serious reactions such as asthma attacks. Over a long time, you could even develop cancer. Avoid getting these products on your skin by wearing gloves when possible. Avoid inhaling toxic fumes by working in a fume hood, spray booth, or - if these are not available - work outside in a well-ventilated area.

Examples of toxic products you will find in a shop:

Solvents: In addition to being flammable, they can also affect your nervous system. (Mineral spirits, lacquer thinner, turpentine, denatured alcohol)

Corrosives
These substances can either be acids or bases. They can destroy your skin, clothes, and even your metal watch band. Vapors from these products may irritate or burn your lungs if inhaled. Wear gloves and safety glasses or goggles, and be careful not to splash.

Examples of corrosive products you may find in a shop:
Wood bleaches



Hazardous waste

Because many of these products can damage the environment, they may be considered hazardous waste when it is time to dispose of them or the rags you may have used. Always dispose of them safely and legally. Never pour chemicals down the drain or onto the ground when you are finished working. Let your teacher know that you need to dispose of them and he or she will handle this job for you.