3 TRAINING MODULE 3
Working with (non-powered) Hand Tools

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Staying safe with hand tools

Most people use hand tools of some description; at home or work—even if it is just a screwdriver to change a fuse, or a pair of scissors to open a parcel or wrap a gift.

We pretty much take them for granted, but almost everyone in the woodworking trade has been hurt by a hand tool. Most people think that such injuries would be very minor, but they can cause quite serious injuries, such as the loss of a finger or an eye.

Much of our work involves using a wide range of and tools—from hammers and saws to knives and chisels; this training will ensure that we use tools properly so we can:

- **Avoid injury** (however minor)
- Carry out the work in the most **efficient** and **effective** way possible

This module will not train you to do beautiful work, but it will explain the issues around their use, giving you the best chance of developing your woodworking skills safely.

The learning outcomes of module 3

After successfully completing this module, you will be able to:

- Understand what the most popular hand tools are used for
- Understand the key hazards of using hand tools
- Adopt working practices that will help you use hand tools safely

Section 1—Hand tools and community wood recycling

A community wood recycling enterprise's work can loosely be divided into two main activities that involve the use of tools:

- **Collecting and preparing** wood and wooden items for sale.
- Adding value to our wood by **processing** it in some way and **creating products**.

On collections the most useful tools are large nail bars, (which can be used for prying apart large bits of timber e.g. roof trusses) and fast-cutting saws (useful for quickly cutting down a piece of wood that might be too long for the truck). Preparing timber for sale simply means removing large nails and screws or other bits of metal, cutting off rotten ends and removing contamination—such as getting concrete off plywood or cutting away a bit of woodworm.

Adding value to our wood can be as simple as sanding it, and for this we have some very effective hand power tools (see Modules 4 and 5). For making products we use a broad range of carpentry tools—both hand and powered.

You do not need to do a course on every different hand tool. Your trainer will demonstrate how to use each tool—and inform you of when and where to use it. Then, when you have completed this module, you will be authorised to use all (non-powered) hand tools—and you can then start to develop your skill with them. The information and exercises in Section 2 will give you an insight into how to use tools safely.

This brings us to our Golden Rules of tool usage:

GOLDEN RULE 1

Never use a tool for which you have not been trained.

GOLDEN RULE 2

Make sure that you use the right tool in the right way for the right job.

Section 2—Reducing the risks of using hand tools

Health & Safety legislation (and common sense) dictates that users must be reasonably competent before using tools, so as to not put themselves or others at risk of injury (nor ruin the tool or the workpiece by improper use).

Inspecting before using tools

Inspecting tools before use is an important habit; it will help prevent accidents and help ensure that the work is carried out effectively and efficiently. The tools you will use will be of professional-quality and designed to withstand long-term repeated use (cheap claw hammers bend too easily and cheap screwdrivers are easily damaged).

What to look for before using a tool

Use the following as a checklist:

- Are any parts of the tool missing?
- Is it rusty or seized up?
- Are any blades or teeth damaged, blunt or loose?
- Is the handle or head loose or damaged?
- Are any other parts of the tool damaged or loose?

Safe working area

Before carrying out any task, consider the risk to you and others in the area in which you will be working—and always make the work area safe before you start.

To help ensure your work area is safe, consider:

- Is there sufficient space to work safely?
- Is there sufficient light to work safely?
- Is the work area floor wet, slippery or uneven? Are there potential trip hazards?
- Is there a barrier or sign to warn people that work is being carried out?
- If working on a table or bench, is it stable?

Identifying ways a tool can injure you or others

If we are aware of the risks of using a particular tool, we will take care when working. Think about some tools and their potential risks of injury:

Tool	Potential Risk	How/why they can injure
Saws, knives, chisels, punches and screwdrivers.	Can cut, scratch or gouge you.	Wrong tool being used; pushing/striking too hard; unstable work piece; wet or blunt tool causes slips; using incorrectly; damaged tool; user not concentrating.
All sorts of hammers and mallets.	Can bruise you, can hit you with fragments.	Wrong tool being used; hitting metal with metal; unstable work piece; wet or blunt tool causes slip; using incorrectly; damaged tool; user not concentrating.
Pliers, pinchers and wrenches.	Can pinch you.	Wrong tool being used; pushing too hard; unstable work piece; wet or blunt tool causes slip; using incorrectly; damaged tool; user not concentrating.

Potential dangers

Accidents more likely to occur when:	Why it is likely to occur:
The work piece can move.	The work piece is not clamped properly; poor technique.
The tool sticks in the cut.	Tool not sharp; work piece needs to be wedged open; wrong tool; poor technique.
The work piece is unsound or damaged.	Rotten wood causes tool to slip or wood snaps.
Undue force is applied during use.	Blunt tool; wrong tool; poor technique.
The work piece is of a particular material/ contaminated with other material.	Use a hack saw if cutting metal; don't use a chisel on wood that might have nails below the surface.
An inappropriate tool is used.	Don't use a screwdriver as a chisel, or a chisel as a screwdriver. Don't use pliers to undo nuts.

Good working practices

The risk of injury will be reduced if you get into good tool-use habits:

- **Always make sure your work area is safe** and secure and that there is no risk to you or others from hazards in the work area.
- **Consider if you need any PPE** such as goggles or a dust mask.
- **Inspect the work piece before use** (when sawing, make sure there are no hidden nails that will damage the tool or cause it to slip/bounce).
- **Secure the work piece** by (wherever possible) working on a proper bench. Put it in a vice or fix it to the bench with clamps. If this is not possible when sawing, ask someone to hold the work piece for you (if it is safe for them to do so).
- **Inspect the tool before use**. Make sure it is sharp/in good condition. Using broken or damaged tools increases the risk of injury and/or ruining the work piece.
- **Secure your footing and make sure you can't slip**. Avoid bending and twisting into uncomfortable positions and always work at a safe height. Do not overreach/stretch and if working on a ladder or platform, make sure it cannot move and have someone to hold the ladder at all times.
- **Use the tool correctly**. Develop your skill with hand tools and you will avoid injury, avoid damaging the work piece and produce higher quality work.
- **Always check tools for wear or damage** after use and clean/oil them before putting them away in the right place (so other people can find them too).

Hand tools and PPE

Below are examples of when PPE should be used when using hand tools:

- **Safety Boots** must always be worn regardless of the task.
- **Safety gloves** can give better grip when using a club or sledge hammer.
- **Eye protection** must be worn when using a metal hammer to strike metal or masonry, such as when using a cold chisel or when breaking /cutting bricks or blocks.
- **Ear plugs/ear defenders** are useful when doing a job that involves repeated hammering.
- **Dust mask** must be used when sawing 'treated' wood or any hardwoods.
- **Hard-hat** must be used when working on or with anyone up a ladder/on a platform.
- **Hi-viz jackets** must be used if working on any public highway or anywhere near moving vehicles.

Section 3—Some tips on using hand tools

- **Chisels and other cutting tools:** Keep tools sharp. Blunt tools are dangerous, as they require excessive force to make them cut. Always cut away from the body. Use a mallet on wood chisels. When striking metal (e.g. when using a hammer and a cold chisel) always use safety glasses. Keep thumbs away!
- **Hammers:** Use the right size hammer for the job; a sledge hammer for heavy breaking; a claw hammer for driving nails and pulling out small ones. A blow should be struck squarely and parallel to the surface. Glancing blows can cause injury. Holding lower down the handle will generate more force. Look for dents, chips, cracks or other signs of wear and tear and never use a hammer with a loose or damaged head or handle.
- **Nail bars: Much** better than claw hammers to remove nails. Use the right size bar for the job. Protect the workpiece by placing a piece of scrap wood between the bar and it.
- **Pliers:** These are not for using as wrenches for turning nuts or bolts. They should only be used for gripping or pulling actions or for cutting thin wire.
- **Saws:** Use the right saw for the job; the more teeth per inch, the finer (but slower) the cut. New hand saws are 'hardpoint', which means they are very sharp but can't be re-sharpened. The teeth are set at three different angles and can easily cause a very nasty cut. Use very carefully. Let the saw do the work and use the full saw blade each stroke. Don't bend or twist the saw in the cut. The cut is made on the downstroke.
- **Screwdrivers:** Never use a screwdriver as a punch, wedge, pry bar or chisel. Choose the proper size tip for the screw. The wrong size driver can damage the screw head, damage the screwdriver and slip and potentially injure you.
- **Spanners:** Don't try to extend the handle with a long tube to add leverage. Instead, use a wrench with the proper sized handle. Make sure the wrench fits the nut, or it could slip or break. If possible, pull the wrench instead of pushing it. The safest wrench is a box or socket type.

And lastly, just to recap…

Hand tool accidents are preventable, if users just follow basic safety rules. The main points to remember are:

- Use the right tool for the job; never use inappropriate or damaged tools.
- Use tools properly; learn to use them with skill.
- Always use appropriate eye protection/PPE where appropriate.
- Inspect, clean and maintain tools regularly; a bit of oil helps keep them in good condition and makes them easier to use.

Section 4—Trainee exercises and questions

There are some questions for you to answer on the following pages.

Remember: don't hesitate to ask for help from your Trainer.

Module 3: Exercises

Write down the hand tools that you have used and feel confident using:

Now let's look at some tools that are used most often in wood recycling and state what they are best used for and what the potential hazards are of using them. Please write down one or more uses for each tool:	
Crow (also known as a wrecking or pry) bar: 	
Hand saw: 	
Hack saw: 	

Stanley knife: 	
Club hammer: 	
Claw hammer: 	
Bolster chisel: 	
Socket set: 	
Pincers: 	
Flat head screwdriver: 	

Office use only		Number of correct answers required to pass Module 3: 8			
Passed:		**Retake:**		**Date:**	
		Trainer's signature:			