

Hands on Activity
Module 1: Hand-powered tools



Goal: Complete the three tasks and questions and become familiar with the tools explored in the Powerpoint.

YOU MUST WEAR SAFETY GLASSES THROUGH THIS ENTIRE PROJECT

Tasks 1: Exploring a ratcheting wrench

The goal of this task is to learn about the different types of bits used in a ratcheting wrench, as well as how the ratchet moves and locks.

- Find the socket wrench set and the block with three different sized bolts on the block.
- Remove the wrench which should not have a bit on it, a bit is the interchangeable socket. Notice there are three different sized bolts sticking out of the block before you.
- Your goal is to tighten and loosen the three different bolts. Take the first bolt and begin trying to find a bit that fits the bolt. Once you do, attach the bit to the ratchet and begin to loosen or tighten the bolt. Notice the black switch on the back of the head of the wrench. When moved, this switch adjusts whether the ratchet loosens or tightens the bolt. Move the switch to discover which way tightens and loosens.
- Notice how you do not need to remove the wrench from the bolt to tighten. In one direction, the wrench tightens or loosens, and when moved the opposite direction, the wrench is no longer engaged. This creates a much faster tightening and loosening of nuts and bolts.
- After you tighten and loosen the first bolt, remove the bit and repeat the steps for the other two bolts.

Reflect:

Which way must the switch face to tighten the bolt? To the LEFT or RIGHT (Circle one)

Tasks 2: Free Board Cutting

- Locate the two thin rectangular boards in the box
- Locate the Coping Saw in the toolkit along with the two clamps.
- Use a pencil or pen to draw a large block letter on the board. The letter should be the first letter of your first name.
- Once the letter is drawn, find the best way to clamp the board safely so you can begin cutting. This process may take a bit of planning.
- Remember to cut away from yourself or anyone else. Use safety glasses.

- To get a feel for the saw, speed up and slow down your cutting speed as well as applying pressure in only one direction at a time. Recall in the powerpoint which direction saws actually cut in.
- Once your design is cut out, feel free to use sand paper to sand edges down.

Reflect:

Which sawing direction actually cut the material? AWAY FROM YOU or TOWARD YOU

Tasks 3: Driving a Nail (optional)

The goal of this task is to become familiar with different hammers and the proper usage of hammer.

- Find the two types of hammers we will use in this task. The Framing Hammer and Rubber Mallet.
- Find a block of scrap wood in the container labelled “Module 1 toolkit 3 Extra wood”
- Using the framing hammer, find the two nails in the box labelled “nails”
- Make a mark on the block with a pen as to where you want to drive your first nail.
- Hold one nail over the mark on the block, pressing the pointed end straight down into the wood.
- Holding the hammer about halfway down the length, hover the head of the hammer above the nail head, parallel to the nail head.
- Tap the nail head gently and slowly with the hammer a few times, while still holding the nail in place. BE CAREFUL OF YOUR FINGERS. DO NOT HAVE YOUR FACE NEAR THE HAMMER. The claws on the back of the hammer can come back and injure you.
- Once the nail is partially in the wood, let go of the nail and move your hand to the end of hammer length. Make long, straight strikes on the nail to drive it into the wood. Make sure to strike the nail flat and straight as to not cause bending.
- IF YOU DO BEND THE NAIL, it is ok. Flip your hammer over and use the claws on the back of the hammer to remove the nail. Slip the nail in between the claws and pull the hammer back, with the flat top of the hammer against the wood. Pull back until the nail slips out of the wood.
- Once the nail is fully in the wood, practice again with another nail.
- Once complete, find the rubber mallet. You can try to drive a nail using the rubber mallet, it probably won't work as well
- Inside the toolkit is a staple gun. These are used in upholstery, and they use staples which look like regular staples used to grip papers. Rubber mallets are used often to drive these types of staples as the rubber is less likely to bend the staples or damage the wood or work. You can also use the staple gun for the same affect.
- To practice, hold the staple gun flush with your scrap wood. Push down on the lever hard and you will hear a loud clang and the staple will pierce the wood. Be careful to use this only on wood!

Once you've completed all of your tasks, please sign the bottom of this paper and leave it with your wood block letter on the table. Please put all tools back inside their proper cases and lock them in the proper locker.

You are to complete one short quiz. The link for which can be found in the final slide of the PowerPoint for this module and on the class website.

I have completed the tasks and module to the best of my ability on my own:

_____ Signature

_____ Date