

Carpentry Workshop

HANDS-ON LESSON PLANS

Lesson One - 7 hour field trip

I. Introduction to Carpentry

- Brief description of work performed, benefits, challenges, entry routes and apprenticeship program.
- Tool Recognition
- Wall Framing
- Measuring, including addition and subtraction of feet and inches – introduce and review a few questions- give remainder as homework.

II. Hands-on activities

Activity: Each student will build a 2' x 2' wall and cover it with drywall.

Stage One – divide class into five groups and have them rotate through the following stations.

1. **Material Handling** – Tradeswoman will demonstrate proper carrying techniques for multiple 2" x 4" s, planks and 8' x 4' sheets of plywood, and supervise as each participant carries each of the materials.
2. **Hand Saw** – Students will calculate the length needed, measure, and cut half of their 2" x 4" s using a hand saw under the supervision of a tradeswoman.
3. **Skill Saw** – Tradeswoman will demonstrate the safe use of a circular saw and supervise students as they calculate the length needed, measure and cut the remaining 2" x 4" s for their wall.
4. **Hammering and Nail Removal** – Tradeswoman will demonstrate proper hammering and nail removal techniques and supervise students as they practice to build speed and accuracy.
5. **Metal Studs** – Students will learn about metal stud construction and practice cutting materials. Use lesson plan labeled "Metal Stud Cutting Demo".

Stage Two – Lunch usually follows the completion of the first round of stations. When students return they will all work together to finish their projects. Allow 30 minutes after lunch for tradeswomen to tell their stories and field questions from the group.

6. **Assembly** – After students have completed the first four stations and have their pieces cut for the wall, they will assemble and nail their 2" x 4" s to create a 2' x 2' frame.
7. **Drywall** – Students will cut a piece of 2' x 2' drywall using a chalk line and utility knife. They will then use a screw gun to fix the drywall to their frames.

Students can bring the finished product home

Stage three – clean-up – students are required to clean up at all stations. If there is additional time, they can also cut openings in the drywall.

III. **Wrap-up**

- Q and A
- Estimating exercise – explain and assign as homework

CWIT provides: hard hats, safety glasses, measuring tapes, gloves, hammers, snips, tool belts, utility knives, and speed squares

Carpenters school provides: wood, chalk lines, circular saws, hand saws, drywall, and screw guns, nails, pry bars.

Hand-outs:

- Standard lumber sizes
- Hand Tools for the Steel Framing Trade
- Metal Stud Cutting Demo
- Safety rules for circular saws
- Tool recognition
- Wall framing assignment
- Adding and subtracting feet and inches
- Estimating worksheet

Lesson Two – 2 ½ hour workshop

I. **Introduction**

- Review homework
- Review plan for the deck and lay-out instructions

II. **Construction of 4' by 4' deck for project (students will work in teams of three)**

- Students will determine number and size of 2x4's needed (completed project and drawings)
- Instructor approves measurements and supervises cuts using circular or hand saws.
- Students lay out 2 x 4's according to the drawing
- Instructor approves lay-out and demonstrates technique for bracing and nailing boards.
- Students assemble decks
- Instructor demonstrates and supervises students in cutting their 4'x4' sheets of plywood.
- Instructor demonstrates using the plywood to square the frame and nailing the two together.
- Students complete project

Tools and Materials: 2' x 4' s, ½" plywood, hammers, 12d non-cement coated nails, 8d nails, circular and hand saws, miter saw, safety glasses, hard hats, measuring tapes, speed squares, tool aprons, saw horses and completed deck frame.

Hand-outs: Drawing for deck frame w/ instructions for creating a material list, "Laying Out a Deck"

Lesson three 2 ½ hour workshop

Construction of 2-4' x 8' walls (students will continue to work with their groups)

- Students will create a material list, determining the number and size of 2 x 4's needed (completed project and drawings) and the height of the finished wall.
- Instructor will approve list and supervise sawing (hand or circular) – ensuring that students achieve a square cut
- Students will assemble both walls per the drawing and instructor's demonstration.
- Instructor will demonstrate California corners and assist students in attaching their walls.
- Instructor will instruct students in the safe use of ladders and monitor for compliance.
- Students will apply braces to the top and sides of the structure as drawn.

Tools and Materials: 2' x 4's, hammers, 12d non-cement coated nails, circular and hand saws, miter saw, safety glasses, hard hats, measuring tapes, speed squares, tool aprons, framing squares, completed walls, saw horses and ladders.

Hand-outs: Project drawings and instructions, ladder safety



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