



NOCTI
500 N Bronson Avenue
Big Rapids, MI 49307-9036
800.334.6283
www.nocti.org

Instructor Prep Pack

**Pilot Testing 2026
Equipment, Materials, and
Supplies**

ACCOUNTING - PILOT (4200)

Setup Instructions

This performance test includes the **required Supplemental Materials** necessary for administration of the performance job(s). Site Coordinators and Co-Coordiators access these materials in the Resources section of the Client Services Center. It is the Site Coordinator's responsibility to ensure materials are downloaded and in place prior to performance test administration. These supplemental materials are part of the assessment and must be kept secure. Providing these materials to instructors for setup purposes is a violation of NOCTI's Security Policy.

Some materials may require that the technology staff at the testing site assist with downloading to the workstations or devices to allow test taker access during administration. Specific instructions can be found in the Instructor Prep Pack available for download in the Client Services Center.

All folders and files must be removed from the participant's server or computer workstation at the completion of testing.

Provide the following for each participant:

- A computer workstation with spreadsheet software that will open Microsoft Excel® documents
- Accounting worksheets (provided to the Site Coordinator on the Client Services Center)
- Pencils
- Scratch paper
- Non-programmable calculator or 10-key business calculator

JOB 1: PAYROLL REGISTER (20 minutes)

JOB 2: BANK RECONCILIATION (20 minutes)

JOB 3: GENERAL JOURNAL ENTRIES (30 minutes)

JOB 4: SCHEDULE OF ACCOUNTS RECEIVABLE AND TRIAL BALANCE (20 minutes)

JOB 5: FINANCIAL STATEMENTS (1 hour)

ADMINISTRATIVE ASSISTING - PILOT (4301)

Setup Instructions

This performance test includes the **required Supplemental Materials** necessary for administration of the performance job(s). Site Coordinators and Co-Coordinator access these materials in the Resources section of the Client Services Center. It is the Site Coordinator's responsibility to ensure materials are downloaded and in place prior to performance test administration. These supplemental materials are part of the assessment and must be kept secure. Providing these materials to instructors for setup purposes is a violation of NOCTI's Security Policy.

Some materials may require that the technology staff at the testing site assist with downloading to the workstations or devices to allow test taker access during administration. Specific instructions can be found in the Instructor Prep Pack available for download in the Client Services Center.

All folders and files must be removed from the participant's server or computer workstation at the completion of testing.

JOB 1: COMPOSING PROFESSIONAL EMAILS AND ADDRESSING AN ETHICAL DILEMMA (20 minutes)

- Computer with no internet access (must have access to a PDF viewer)
- Paper and pencil for notes
- The supplemental materials included in the "Job 1 – Student Materials" folder

JOB 2: CREATING A THREE-PAGE REPORT (60 minutes)

- Computer with no internet access (must have access to Microsoft Word)
- Paper and pencil for notes
- The supplemental materials included in the "Job 2 – Student Materials" and "Job 2 – Evaluator Materials" folders

JOB 3: SPREADSHEET USAGE WITH RAW DATA (40 minutes)

- Computer with no internet access (must have access to Microsoft Excel)
- Paper and pencil for notes
- The supplemental materials included in the "Job 3 – Student Materials" and "Job 3 – Evaluator Materials" folders

JOB 4: MEETING AND AGENDA MANAGEMENT (60 minutes)

- Computer with no internet access (must have access to Microsoft PowerPoint and the ability to open PDFs)
- Paper and pencil for notes
- The supplemental materials included in the "Job 4 – Student Materials" and "Job 4 – Evaluator Materials" folders

AGRICULTURE MECHANICS - PILOT (2302)

JOB 1: PRECISION MEASUREMENT (40 minutes)

- All necessary protective clothing and safety equipment:
 - Safety glasses/face shield
 - Hair tie, if appropriate
- OHV engine with repair manual (horizontal shaft 5 to 12 horsepower)
- Dial caliper (NO digital) or micrometer
- Feeler gauges
- Dial indicator kit with appropriate mounting device
- 2 SAE bolts of different size
- Thread pitch gauge
- Tool for prying crankshaft to test for endplay
- Marking device (e.g., sharpie, tape)

JOB 2: FRAMING STAIRS (30 minutes)

- All necessary protective clothing and safety equipment:
 - Safety glasses/face shield
 - Dust mask
 - Gloves
 - Leather close toed shoes
 - Hair tie, if appropriate
 - Hearing protection, if appropriate
- 1- 2- by 12-inch cut into 4-foot segments per participant
- Framing square or quick square
- Pencils
- Portable electric circular saw
- Sawhorses (or applicable)
- Tape measure
- Clamps, if applicable

JOB 3: ELECTRICAL DIAGNOSTICS (30 minutes)

- All necessary protective clothing and safety equipment:
 - Safety glasses/face shield
 - Hair tie, if appropriate
- Vehicle or equipment with a 12-to-24-volt battery source
- Multimeter with DC 0-to-500-amp with amp clamp
- Extra fuses for multimeter

AGRICULTURE MECHANICS - PILOT (2302) (continued)

JOB 4: METAL FABRICATION (1 hour)

- All necessary protective clothing and safety equipment
 - Face shield
 - Shade 5 glasses
 - Welding helmet shade 10-13
 - Gloves
 - Long cotton sleeve
 - Leather work boots
 - Long pants
 - Hair tie, if appropriate
- One piece of mild steel plate (per participant) 1/4-inch by 5-inch square
- Provide an oxyacetylene cutting rig with the proper tip for this job
- Soapstone
- Steel ruler
- Tool for measuring beveled edge
- MIG welder (gas shielded) with appropriate wire
- Grinder
- Slip joint pliers
- Striker or torch lighter
- Chipping hammer with wire brush
- Appropriate cutting table
- Appropriate welding table
- Appropriate ventilation

CARPENTRY - PILOT (4315)

JOB 1: INSTALLING BASEBOARD (30 minutes)

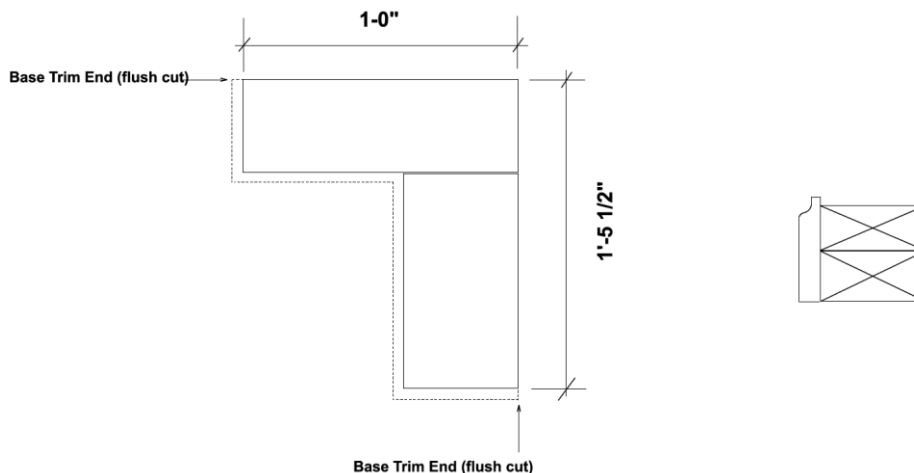
- Appropriate personal protective equipment:
 - Safety glasses
- Miter saw
- Coping saw
- Finish nail gun
- Brad nail gun
- 1-1/4" brad nails
- 2" finish nails
- Pencil
- Tape measure
- Speed square
- Hammer
- Nail set
- 1-8' - 3-1/4" colonial baseboard trim per student
- 100 grit sandpaper 1/4 sheet per student
- Trim bar or appropriate tool for removing trim after job

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Instructions for pre-built frame:

Build one frame for every five test takers before testing starts:

- 2 – 12" pieces of 2" x 6"
- 2 – 17-1/2" pieces of 2" x 6"
- 2-1/2" deck screws



CARPENTRY - PILOT (4315) (continued)

JOB 2: CABINET PLUMBING ROUGH-IN (30 minutes)

- Appropriate personal protective equipment
 - Safety glasses
- Sheet stock – 16" x 24" (1 per participant)
- Laser (If laser line is not easily visible, provide painters tape for the student to mark the line.)
- Drill
- 1" drill bit
- 2-3/4" drill bit
- Pencil
- Tape measure
- Framing square
- Speed square

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Instructions:

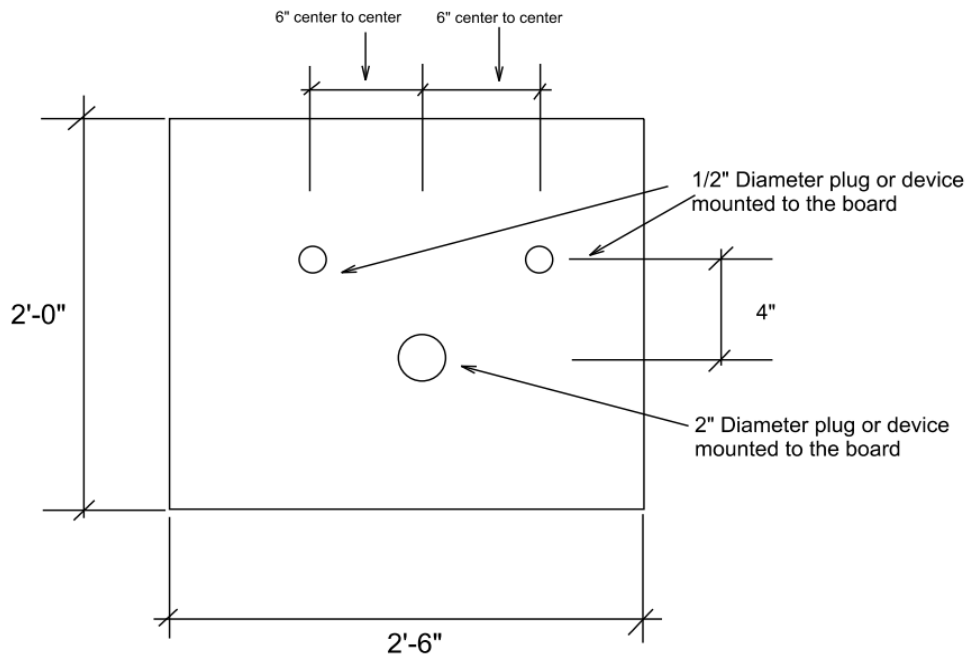
Each site should create a cabinet plumbing rough-in mock-up prior to evaluation. This mock-up should be mounted vertically on a wall and should be placed 1/4" out of level:

- 2'6" x 2'0" sheet stock
- Included on the mock-up are 2 copper stub outs and 1 drain that have been mounted.
- Follow specifications on graphic below exactly.
- Appropriate substitutions that protrude an equal distance off the mock-up are acceptable in place of stub-outs.

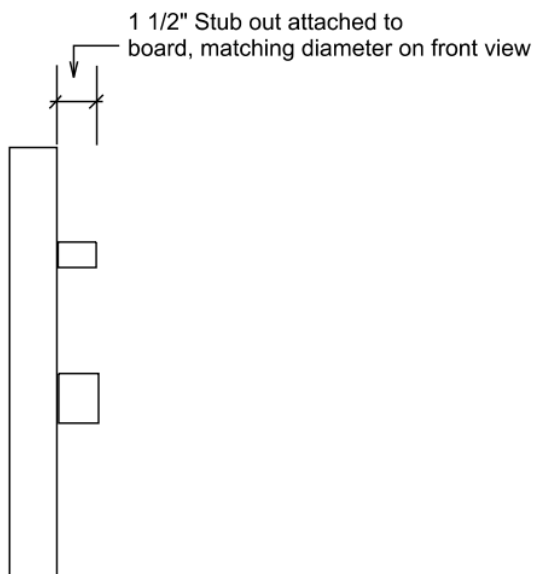
CARPENTRY - PILOT (4315) (continued)

JOB 2: CABINET PLUMBING ROUGH-IN (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR: (continued)



Front View



Side View

CARPENTRY - PILOT (4315) (continued)

JOB 3: RAFTER LAYOUT (20 minutes)

- Appropriate personal protective equipment
- 1 piece of lumber: 2-inch by 6-inch by 8 feet (species does not matter)
- Roll of paper, 5-1/2 inch by 8 feet, per participant
- Rafter framing square or speed square with accompanying book
- Stair gauges/square clips
- Staples or masking tape
- Tape measure
- Non-programmable calculator
- Pencils

JOB 4: RECTANGLE LAYOUT (20 minutes)

- Appropriate personal protective equipment
- 4 concrete blocks, 8 inch by 8 inch by 16 inch
- Framing square
- 2 tape measures (for each workstation)
- Chalk line (including blue chalk)
- 2-inch masking tape (may be used to mark corners of square)
- Broom to sweep away chalk lines between participants
- Non-programmable calculator
- Pencils

JOB 5: STAIRWAY STRINGER (30 minutes)

- Appropriate personal protective equipment
- 1 piece of lumber: 2" by 12" by 48" (species does not matter)
- Roll of paper, 11-1/4" by 4', per participant
- Framing square or speed square (participant may use either)
- Stair gauges
- Staples or masking tape
- Tape measure
- Non-programmable calculator
- Pencils

NOTE: Substitutions may be made in the above list <u>only</u> if the item is not available. The substituted item must be similar to the one listed and must be of equivalent difficulty.
--

CARPENTRY - PILOT (4315) (continued)

JOB 6: BLUEPRINT READING AND EXTERIOR SOLE PLATE LAYOUT (30 minutes)

- Appropriate personal protective equipment
- 1 piece of lumber: 2 inch by 4 inch by 16 feet (species does not matter)
- Roll of paper, 3-1/2 inch by 16 feet, per participant
- 1-inch masking tape or staples
- Tape measure, at least 25 feet
- Framing square or speed square or combination square
- Non-programmable calculator
- Pencils

COMPUTER NETWORKING FUNDAMENTALS - PILOT (4714)

NOTE: All equipment for this performance assessment must be tested and in proper working condition (unless otherwise stated) prior to the testing date.

A disconnected private network should be used for this performance assessment. Evaluator will need to set up the local network ahead of time and make Kiosk 1 fully functional and connected. Instructor or Evaluator will need to assign IP addresses before participants begin assessment.

JOB 1: SET UP A SIMPLE LAN WITH TWO WORKSTATIONS AND HARDWARE INSTALLATION (1 hour)

Each participant will require TWO workstations for this job.

- **For each job, start with a fresh install of an Operating System.**
- **Kiosk #1 must be pre-configured.**
- **Workstation #X must have a NIC that is not functioning.**
- **Disable onboard NIC device or remove failed NIC in workstation #X**
- **A copy of the NIC driver needs to be available in case the participant needs to reinstall the driver.**
- **USB NICs are not permitted**

For each participant:

- Two PC workstations, with networkable operating systems, labeled Kiosk #1 and Workstation #X, with field-replaceable unit (FRU) NICs
- One standby unit for every 2 participants (in case of test unit failure)
- The NIC in Kiosk #1 is correctly configured
- The NIC in Workstation #X needs to be non-functioning
- Copies of the proper NIC drivers and
- Two (correctly terminated) Cat-5 or newer straight-through cables
- An Ethernet switch/router with minimum number of ports to support the participants (at 4- or 8-port) with appropriate AC adaptor
- NIC Adapter (PCI or PCI-E)
- Workstations booted, ready, and logged on with administrative access
- Screwdriver
- ESD safety strap or mat
- Nitrile or latex gloves
- LAN cables
- Writing utensils
- Paper

COMPUTER NETWORKING FUNDAMENTALS - PILOT (4714) (continued)

JOB 2: MAKING AND TESTING CABLES (35 minutes)

- 6 ft. CAT-5/6 cable (Riser and Plenum cable) per participant
- 2 – RJ-45 passthrough style terminals per participant
- RJ-45 EZ style crimpers per participant
- Continuity tester (ex. Fluke)
- Wire strippers/cutters
- Cable labels
- Cable labeler or pens for marking
- Premade cables (4 total)
 - 2 – straight through (1 good, 1 bad)
 - 2 – crossover (1 good, 1 bad)

Must have CAT-5/6 cables and RJ-45 EZ style terminals available for student use if student is unable to make cable correctly.

EARLY CHILDHOOD EDUCATION - PILOT (4316)

Setup Instructions

This performance test includes the **required Supplemental Materials** necessary for administration of the performance job(s). Site Coordinators and Co-Coordiators access these materials in the Resources section of the Client Services Center. It is the Site Coordinator's responsibility to ensure materials are downloaded and in place prior to performance test administration. These supplemental materials are part of the assessment and must be kept secure. Providing these materials to instructors for setup purposes is a violation of NOCTI's Security Policy.

Some materials may require that the technology staff at the testing site assist with downloading to the workstations or devices to allow test taker access during administration. Specific instructions can be found in the Instructor Prep Pack available for download in the Client Services Center.

All folders and files must be removed from the participant's server or computer workstation at the completion of testing.

Provide the following for each participant:

- Job 2 "How Are You Feeling?" chart (see Supplemental Materials)
- Job 3 "Site Specific Sanitizing and Disinfecting Procedures" chart

NOTE: A group of four children (3 to 5 years old) will be needed for Jobs 1 and 2. The site coordinator should determine and arrange for a specific number of children so that no group of children will be asked to sit through more than two consecutive sessions.

NOTE: During all aspects of all performance jobs (set-up, delivery, and clean up), maintain appropriate staff-to-child ratios in accordance with state and federal laws.

JOB 1: PREPARE AND DELIVER AN INTERACTIVE READ-ALOUD (45 minutes)

- Book – *Pete the Cat: I Love My White Shoes*, by Eric Litwin, James Dean, and Kimberly Dean
- Sticky notes
- Paper
- Writing materials
- Prepared nametags for the children who will be participating, and the participant
- Markers
- Prepared introductory activity (included in Participant Instructions)

EARLY CHILDHOOD EDUCATION - PILOT (4316) (continued)

JOB 2: SOCIAL EMOTIONAL LEARNING (SEL) LESSON PLAN DELIVERY (45 minutes)

- Play-Doh
- Paper plates
- Prepared lesson plan (included in Participant Instructions)
- “How Are You Feeling?” chart (included in Supplemental Materials)
- Prepared nametags for each student
- Dot stickers

JOB 3: SANITIZE AND DISINFECT A TABLE AFTER CONTAMINATION (20 minutes)

- “Site Specific Sanitizing and Disinfecting Procedures” chart (included in Supplemental Materials)
- Disposable gloves
- Suitable disinfectant
- Suitable sanitizer
- Paper towels
- Trash can
- Water with coloring in a spray bottle
- Table and chairs
- 3 non-porous toys (one of the toys should be multi-sided, like a toy block)
- Crumpled tissues
- Timer (for evaluator use)
- Access to a sink
- Handwashing soap

EARLY CHILDHOOD EDUCATION - PILOT (4316) (continued)

JOB 3: SANITIZE AND DISINFECT A TABLE AFTER CONTAMINATION **(continued)**

Site Coordinator Instructions: Using the language provided in your site guidelines or handbook, fill out the needed information and present to the evaluator for use when grading.

<u>Site Specific Sanitizing and Disinfecting Procedures</u>	
Sanitizing Procedure for Toys	
Disinfecting Procedure for Toys	
Contact time for Disinfectant and Sanitizer on tables	
How long a table should be left to air- dry	

ESTHETICS – PILOT (1172)

ALL JOBS:

- Mannequin
- Client protective drape
- Client protective head covering
- Sheet and/or towel for chair/table, if appropriate
- Labeled: appropriate trash/disposable receptacles (including biohazard)
- Labeled: appropriate disinfectant container
- Hand sanitizer
- EPA registered disinfectant
- Paper towels, if appropriate

JOB 1: FACIAL (25 minutes)

Cleanser and Toner:

- **Simulated labeled:**
 - Toner
 - Facial cleaner
- Esthetic wipes or cotton rounds
- Disposable or disinfected spatulas, if appropriate
- Water bottle or bowl, if appropriate

Skin analysis:

- Eye covers
- Magnification light or magnifying glass

Massage:

- **Simulated labeled:**
 - Massage medium
- Esthetic wipes or cotton rounds
- Disposable or disinfected spatulas, if appropriate
- Water bottle or bowl, if appropriate

Mask:

- **Simulated labeled:**
 - Mask
 - Warm steam towels or appropriate removal material
 - Moisturizer
- Esthetic wipes or cotton rounds
- Disposable or disinfected spatulas, if appropriate

ESTHETICS – PILOT (1172) (continued)

JOB 1: FACIAL (continued)

PPE:

- Disposable gloves
- Appropriate program uniform
- 1 First aid kit, if warranted

JOB 2: WAXING AND TWEEZING (15 minutes)

- **Simulated labeled:**
 - Wax
 - Pre-cleansing product
 - Post-antiseptic
- Sticks
- Strips
- Tweezers
- Gloves
- Eyeliner or non-permanent pencil for mapping
- Cotton rounds/balls

JOB 3: MAKEUP (25 minutes)

- Palette
- Foundation
- Powder
- Blush
- Eyeshadow
- Lipstick
- Sponges
- Cotton balls
- Pencil sharpener
- 70% Isopropyl rubbing alcohol spray
- Tissues
- Wubbie/towel
- Cotton tip applicators, if applicable
- **Per participant:**
 - Pencil eyeliner
 - Mascara
 - 2 disposable applicators for eyeshadow
 - 2 disposable spoolies
 - Disposable lip brush

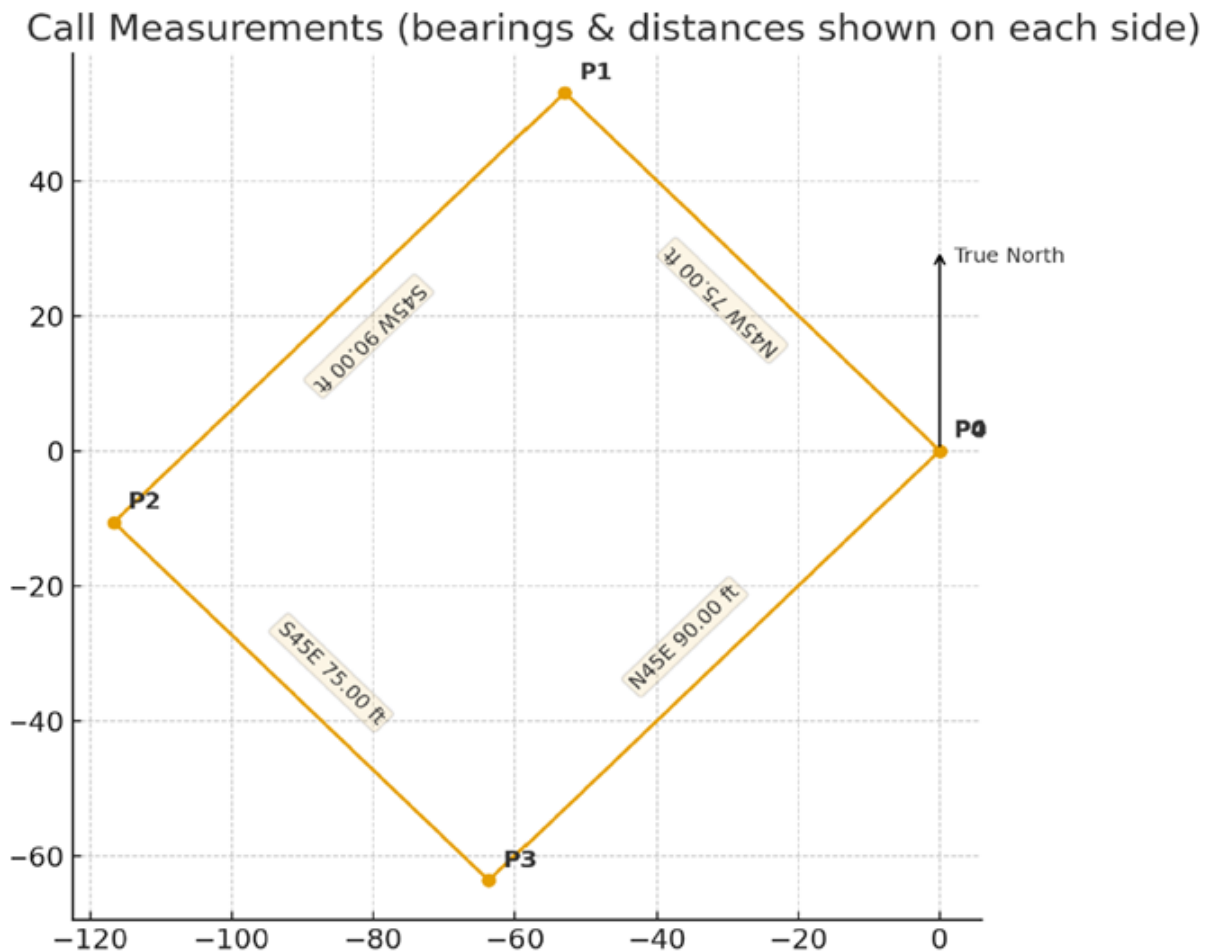
FOREST PRODUCTS AND PROCESSING – PILOT (3137)

JOB 1: SURVEYING AND COMPASS USE (30 minutes)

- Site set up ahead of time (see Set-Up Instructions)
- Compass (already adjusted for appropriate declination)
- Platted map of the property (on an open field)
- Survey flags that can be put into the ground
- Measuring tape
- Device to hold the tape measure (for participant use) (screwdriver, railroad or tent spikes, etc.)
- Nails
- Laser line tool (for evaluator use only)

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Site instructions: The site will need to be prepared ahead of time. Select a flat piece of land/property that is large enough to contain the provided plat. Before participants arrive, the site coordinator should set up the property with nails at each corner. The nails should not be visible to the participant. Mark the first corner with a flag.



FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 2: TIMBER SCALING AND VOLUME CALCULATIONS (15 minutes)

- PPE:
 - Hard hat
 - Leather gloves
 - Fluorescent safety vest (if in woods)
 - Safety glasses
 - Leather boots (8 inches)
 - Full length pants
 - Long sleeve shirt
 - Rain gear (if necessary)
- Writing utensil
- Clipboard (if needed)
- Scaling stick
- Log rule – Doyle, Scribner, or International 1/4 Inch (site preference)
- Logging tape (50 feet)
- Nail tip for logging tape or suitable equivalent
- Tree log (select a log that is uniform in diameter, to the best of the site's ability).
Ensure defect is present.

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Site instructions: For each log that will be used, fill out the corresponding key. Present this key (see next page) to the evaluator for scoring. The boxes that are shaded require the site to perform calculations. This will enable the evaluator to determine the acceptable or unacceptable ranges.

FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 2: TIMBER SCALING AND VOLUME CALCULATIONS (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR: (continued)

Log Number (If Applicable)		
Species		
Small End Diameter		
+2% of small end diameter _____	+5% of small end diameter _____	+10% of small end diameter _____
-2% of small end diameter _____	-5% of small end diameter _____	-10% of small end diameter _____
Log Length		
Gross Volume in Board Feet		
Defect Name		
Estimated Deduction in Board Feet		
+5% of estimated deduction _____ -5% of estimated deduction _____		
Net Volume in Board Feet		
+5% of total net volume in board feet _____	+10% of total net volume in board feet _____	
-5% of total net volume in board feet _____	-10% of total net volume in board feet _____	

FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 3: VERBAL BUSINESS COMMUNICATIONS (20 minutes)

- Provided scenario (included in Participant Instructions)
- Paper and writing utensils for notes

JOB 4: FORESTRY INVENTORY - POINT SAMPLING WITH WEDGE PRISM (60 minutes)

- Hard hat
- Orange cruiser vest
- Hiking boots
- Woods-ready pants and shirt
- BAF 10 Wedge prism
- Compass (already adjusted for appropriate declination)
- Combination percent and topographic-scale clinometer
- Logger Tape
- Clipboard
- Limiting Distance Table (included in Participant Instructions)
- Slope Correction Factor Table (included in Participant Instructions)
- Site prepared ahead of time—flat, wooded area with approximately 12-14 larger trees, with trees that are not leaning, if possible.

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Site instructions: The site will need to be prepared ahead of time. Select a flat, wooded area with approximately 12-14 larger trees that are not leaning. Mark the point/plat center with a metal marking flag or stake and a plot ID number. Complete a point sample using a wedge prism. (Reference Participant Instructions for complete details.) Complete the tally sheet below. Present the sheet to the evaluator for use in grading.

FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 4: FORESTRY INVENTORY - POINT SAMPLING WITH WEDGE PRISM (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR: (continued)

Tally Sheet			
Plot ID Number			
Tree Number	Tree Species	DBH	Merchantable Height
1 (Northern most)			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
TOTAL BASAL AREA PER ACRE: _____			

FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 5: GPS USAGE AND TREE IDENTIFICATION (30 minutes)

- PPE:
 - Long pants
 - Closed-toed shoes
 - Hard hat (if job takes place in a forest)
 - Vest (if job takes place in a forest)
- A clean, note-free clipboard
- Sharpened pencils or other writing utensil
- A GPS unit (such as the Garmin eTrex or equivalent)
- Answer sheet to record data (included in Participant Instructions)
- A course set up ahead of time (wooded area or open field) with at least six specimens (three will be assessed, three will be distractors). Either use:
 - All live specimens
 - All samples of specimens
 - All high quality-colored pictures of specimens
- Tree Species List - Used for spelling, see Participant Instructions

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Site instructions:

1. This course should be set up in a wooded area or open field scenario.
2. Set up a “Starting Line” or station.
3. Identify and record four GPS coordinates on the table below. This table will be presented to the evaluator for grading.
 - Points 1, 2, and 3 should be coordinates at least 50 yards apart from one another. These designated points should have a tree specimen, sample, or picture. These designated points should be marked with the coordinates for the NEXT designated point. (Example: Point 2 should have a piece of paper with the coordinates for Point 3)
 - The third designated point should be marked with the coordinates for the Finish Line.
4. Place three “Distractor” samples: These should be live specimens, samples, or pictures that are in the open field or wooded area. These should be marked with coordinates that do not lead to any other samples. Record the name of the specimens placed at the distractor points.

FOREST PRODUCTS AND PROCESSING – PILOT (3137) (continued)

JOB 5: GPS USAGE AND TREE IDENTIFICATION (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR: (continued)

	Coordinates	Common Tree Species
Point 1		
Point 2		
Point 3		
Finish Line		
Distractor Samples		1. _____ 2. _____ 3. _____

HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145)

JOB 1: MEASURE AND ADJUST GAS PRESSURE ON A FURNACE (20 minutes)

- **Equipment:**
 - A fully functional gas furnace (duct work not needed) with:
 - a jumper between the R and W control terminals
 - a service switch
 - a legible rating plate or installation book with furnace specs
- **Materials:**
 - Manometer with necessary fittings
 - Allen keys
 - Adjustable or open-end wrenches
 - Phillips and straight screw drivers
 - Pipe dope
 - Leak check solution
 - Rags
- **Extra tools set up on table for selection** (these should be tools that are not needed):
 - Manifold gauge set
 - Pipe wrenches
- **PPE:**
 - Safety glasses
 - Standard work gloves
 - Footwear

HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145) (continued)

JOB 2: BRAZING WITH NITROGEN (30 minutes)

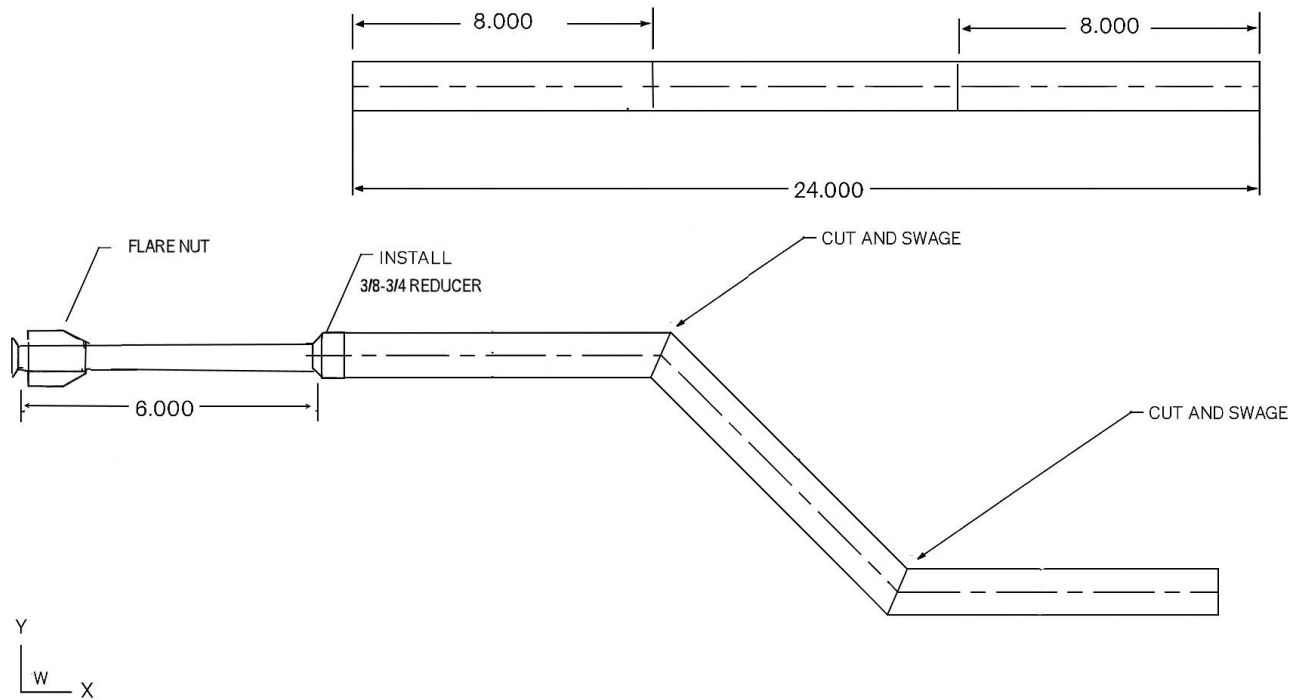
- 24" section of 3/4" copper tubing
- 3/8" flare nut
- 3/8" MFL x 1/4" MFL adaptor
- 8 inches of 3/8" soft copper pipe
- 3/4" to 3/8" reducer
- 15% silver alloy brazing rods
- Oxy/acetylene or air/acetylene torch only
- Pipe cutter
- Tape measure
- Swaging and flaring kit
- Sand cloth
- Nitrogen tank with nitrogen regulator and flow meter used for low pressure purge or sweep
- 1/4" hose for purging or nitrogen sweep
- Wet rag for cleaning prior to inspecting
- Pipe bender
- Vise or clamp if needed
- Scribing tool or marking tool
- Deburring or reaming tool
- Small bucket
- **PPE:**
 - Gloves
 - Safety glasses

HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145) (continued)

JOB 2: BRAZING WITH NITROGEN (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Build scale model for Job 2.



HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145) (continued)

JOB 3: ANALYZE GAUGE READINGS (15 minutes)

- Split AC system
- Analog manifold gauge set with low loss hoses
- PT chart
- Digital thermometer with pipe clamp
- 10-key calculator
- **PPE:**
 - Safety glasses
 - Frost and chemical resistant gloves

JOB 4: RECOVERY AND EVACUATION OF A SYSTEM (20 minutes)

- Extra recovery hose
- Digital manifold gauge set equipped with internal micron gauge
- 2 empty recovery cylinders
- High-quality vacuum pump
- Refrigerant charging scales
- Recovery machine
- **PPE:**
 - Safety glasses
 - Frost resistant gloves

JOB 5: UTILIZE FUNCTIONS OF A MULTIMETER (30 minutes)

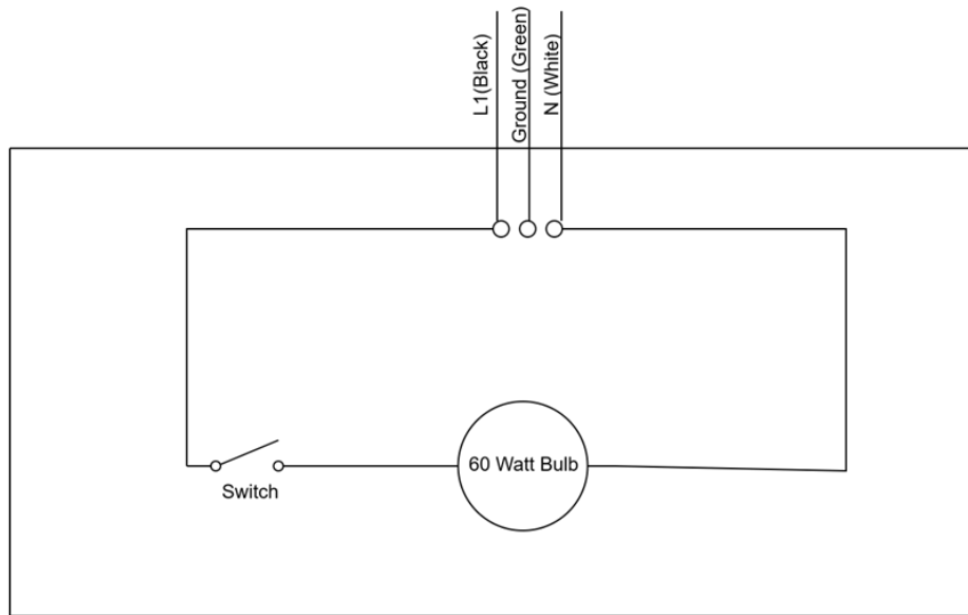
- 2 incandescent light bulbs (one stand-alone for ohm testing and one on the board)
- 2 light switches (one stand-alone for ohm testing and one on the board)
- 35/5 uF capacitor
- 9 V battery
- 2 standard bulb base sockets
- 3 feet of 14-gauge black wire
- 3 feet of white wire
- Power cord with male plug on one end and stripped wires on the other to be connected to the board
- Terminal block for L1 and N wires to connect the power cord to the board
- Multimeter with VDC, VAC, ohm, uF, and amp clamp
- **PPE:**
 - Safety glasses

HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145) (continued)

JOB 5: UTILIZE FUNCTIONS OF A MULTIMETER (continued)

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Pre-build board for Job 5.



HVAC – HEATING, VENTILATION, AND AIR CONDITIONING - PILOT (3145) (continued)

JOB 6: WIRE AND PROGRAM A THERMOSTAT (20 minutes)

- **Equipment:**
 - Battery operated non-communicating, low-voltage, non-Wi-Fi, gas furnace and AC thermostat installation manual
 - Extra batteries for thermostat
- **Tools:**
 - Screwdriver set
 - Screws for mounting
 - Wire strippers
 - Level
- **Extra tools set up on table for selection** (these should be tools that are not needed):
 - Hammer
 - Chisel locks
 - Utility knife
 - Tin snips
- **PPE:**
 - Safety glasses

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Build a solid base for mounting a thermostat at 60 inches.