

Skilled Trades Worker

Practitioner's Guide and Answer Key

2025



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Introduction

Introduction to Skills for Success

Answer key:

Learning Activity

1. Communication
2. Reading
3. Digital
4. Collaboration
5. Adaptability
6. Numeracy
7. Creativity and Innovation
8. Writing
9. Problem Solving or Numeracy

Module 1

Before You Begin

1A: What is a Skilled Trades Helper?

Answer key:

1. perform labouring activities at construction sites
2. construction companies and trade and labour contractors
3. Answers may vary, but may include the some of the following:
 - carry loads of wood or minerals
 - clean work site areas
 - build items using a variety of basic tools
 - read work orders
 - read and follow safety procedures
 - use maps to locate work sites
 - complete time sheets
4. Answers will vary. Learners should give a definition in their own words; what they believe a skilled trades helper does.
5. Answers will vary. The information is to not only give you more insight into your learners, but mainly to get them thinking about what they want; what their goals are; what they would like to learn.

1B: Other Trades People on the Job Site

Answer key:

Learning Activity 1: Construction Trades

1.
 - A. materials
 - B. structures
 - C. materials
 - D. equipment and machinery
 - E. equipment
 - F. mixers and compressors
 - G. traffic near construction sites
 - H. herbicides and pesticides
 - I. holding and moving stakes and rods
2. Answers will vary.

Learning Activity 2: Carpenters

1. read ... blueprints, drawings, & sketches build ... foundations
2. erect ... walls and roof systems install ... floor beams
3. Answers will vary. May include saws, hammers, wrenches, screwdrivers, drills, etc.
4. houses, mills, hospitals, industrial plants
5. medical, dental, pension
6. \$31,000
7. \$33.00/hour

Learning Activity 3: Cement Masons and Finishers

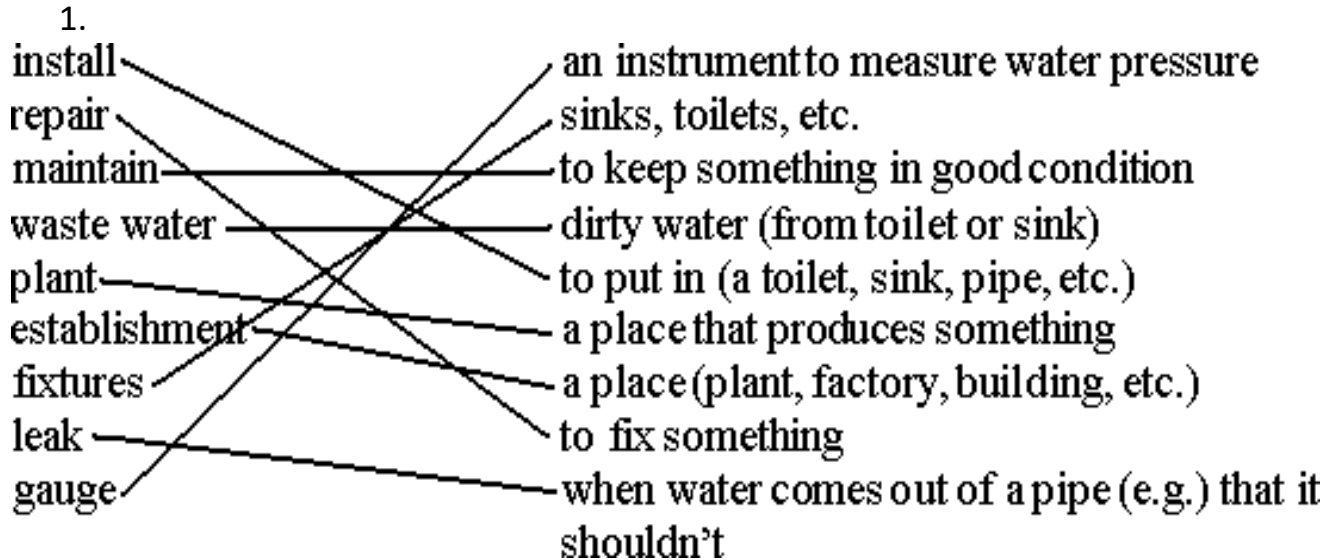
1.
 - A) concrete by pushing or pulling a screen or template over the surface
 - B) fixtures such as anchor bolts, steel plates, and door sills
 - C) vertical surfaces by wetting the concrete and rubbing it with abrasive stone
2. edging tools, rulers, jointers, straight edges, chisels, hammers, grinders
3. apprenticeship
4. No
5. seasons and with economic growth
6. workers who are skilled in the operation of computer controlled equipment
7. both
8. Operative Plasterers, Cement Masons, and Restoration Steeple Jacks of the United States and Canada

Learning Activity 4: Industrial Painters

1. new and old construction
2. remove old paint using blow torches, liquid paint remover, and scrapers
3. brushes, rollers, spray guns
4. International Brotherhood of Painters and Allied Trades
5. 40 hours/week

5. both, the job is seasonal

Learning Activity 5: Plumbers



2. pipe, pipe fittings air, water

couplings, clamps, screws, bolts, cement, soldering, brazing, welding water, waste, drainage

domestic, industrial, walls, floors hand, power

passage, walls, floors

Learning Activity 6: Roofers and Shinglers

1. • asphalt-saturated felts and hot asphalt and gravel
 - waterproof sheet metal materials
 - sloped roofs of buildings
 - flashings
 - concrete
 - hand and power tools
 - provide safe access to roofs

- on sloped roofs of buildings
- 2. roofing contractors or self-employed
- 3. No

Learning Activity 7: Terrazzo, Tile, and Marble Craftspeople

1.
 - surface to be covered
 - underbeds
 - mortar, cement, mastic, glue, or another adhesive
 - in position
 - levels, squares, and straight edges
 - obstacles and openings
 - joints between tiles
 - tile strips
 - decorative wall, mural, and floor designs
 - terra surfaces
 - cracked or damaged tiles
2. examine blueprints, layout, measure, and mark area assemble materials and mix compounds
3. union hiring halls and networking
4. knees and back
5. special trade, building, general contractors

1C: What Employers Want in a Skilled Trades Helper

Answer key:

Learning Activity 1

1. show up on time, follow instructions, ask questions when needed, be willing to learn, work hard, use no alcohol or drugs on the job
2. Answers will vary. Some learners may be surprised that more woodworking/construction type skills were not on the list.
3. Answers will vary. Some learners may not have anything to add to the list.
4. numeracy, significant use of memory, working with others
5. Answers may vary, but should include some of the following
not committed to the job, inconsiderate, poor time management skills, not giving 100%, if you can't get to work on time it may mean you can't work well, you don't really care about being employed
6. Answers will vary as the reading contains ten tips. Answers should contain three of the following:
 - Set your alarm clock 20 minutes ahead.
 - Set your alarm earlier.
 - Buy an alarm clock that doesn't have a snooze button.
 - Set the alarm clock on the other side of the room.
 - Prepare for your day the night before.
 - Create a morning routine and stick to it.
 - Get 8 hours of sleep a night.
 - Don't drink alcohol on weeknights.
 - Don't drink coffee in the evenings.
 - Ask someone to give you a wakeup call.
7. Answers may vary. May include the following:
 - reading a list of things to do
 - reading and following safety procedures
 - reading and understanding SDS

- reading instructions to put something together

8. Answers will vary but should include at least one of the seven tips below as well as an explanation of why it is important.

- Read all of the directions before starting.
- Read and complete step by step.
- Take one step at a time.
- Check off when you've completed a step.
- Read the instructions before you begin.
- Look at the diagrams.
- Circle important words .

9. taking in the information, processing, understanding, memorizing

10. F, T, F, T, F, T

11. Answers may vary and may include some of the following:

- worried about looking "stupid"
- worried others will think that they don't know what they are doing
- embarrassed to talk in a group

12. Answers will vary.

"Where exactly do you want it piled out back?"

13. Saying the information back to the speaker in order to make sure you understand exactly what they want you to do.

Answers will vary.

Paraphrasing or mirroring
Two gallons red, two gallons white, 2 lbs finishing nails, charged to company.

Clean up table saw, scraps to dumpster, and make room for electrician.

(May add clarifying question: Where do you want me to move the pile of lumber to?)

14. volunteer to help, ask questions, read more about it, take courses or training, volunteer for charitable organizations

15. Answers may vary.

Hard work refers to the fact that the job is physically demanding. Working hard refers to the amount of effort you put into doing a job.

16. Answers may vary.

The more you anticipate what needs to be done, the less direction your boss needs to give you. You want to try to save your employer from having to take time out of their day to constantly assign new tasks to you.

17. No person under the influence of, or carrying, alcoholic beverages is to enter, or knowingly be permitted to enter, the construction project.

No person under the influence of, or carrying, illicit drugs is to enter, or knowingly be permitted to enter, the construction project.

The use of alcohol and other drugs (not prescribed by a physician) on a job or during work hours will result in disciplinary action.

18. Answers may vary but should contain Jack Smith, Wilson Brickyard, order delayed because machine broke down, should be here by next Thursday. Jack's numbers: 548-8492 or 878-8726.

19. Answers should reflect an understanding of the importance of following verbal instructions.

Learning Activity 2

1. Planning Tasks and Times

Answers may vary for questions but should reflect the approximate time needed for each task. Marking is at the discretion of the instructor.

Sample answer:

Tasks	Time for Task
<i>Make coffee</i>	<i>5 minutes</i>
<i>Coffee and breakfast</i>	<i>15 minutes</i>
<i>Dog for a walk (boots and coat on and off)</i>	<i>20 minutes</i>
<i>Shower, brush teeth and get dressed</i>	<i>25 minutes</i>
<i>Pack bag</i>	<i>5 minutes</i>
<i>Walk to work</i>	<i>30 minutes</i>
<i>Time to be there early</i>	<i>+20 minutes</i>

A. 120 minutes/ 2 hours

B. $830 - 2 = \underline{630 \text{ am}}$

2. Using Maps to Arrive on Time

Answers will vary. For success, the learner must complete the directions by using an online map and record the times for walking, driving and bicycling to the intended job site.

1D: Communicating with Others

Answer key:

Learning Activity #1

1. He plays real good = He plays really well.

I ain't going = I am not going.

You could of made it = You could have made it.

No way can I do that = There is no way I can do that. He goes, "...." = He said, "..."

I got to = I have to

Huh? = Pardon me/ I'm sorry, what did you say?

2. He decided to bag that idea = He decided not to pursue that idea.

You're a cool dude, Mr. Smith = I appreciate your work, Mr. Smith./ It's great working with you, Mr. Smith.

Run that by me again = Could you repeat that, please?

Cathy used to be a real jock. but now she's a couch potato = Cathy used to be into sports, but she isn't anymore.

Learning Activity #2

1. By external factors, such as noise, as well as internal factors, such as hunger, worry etc.
2. Slouching in the chair, looking at our watch, playing with our glasses etc.
3. Have something to eat before the conversation so that we are not hungry.
Try to talk in a quiet place, if possible.
4. Nonverbal clues, such as facial expressions, gestures etc.

Learning Activity #3

1.
 - Say 'I' instead of 'you' so that the boss wouldn't think I was blaming him or saying that everything was 'all his fault'.
 - Try not to put my boss on the spot. I would make sure that he isn't busy and that he's not dealing with any other crisis or situations.
 - Give suggestions on how to make the situation better or how to turn it into a safe one.
2.
 - There is something unsafe happening
 - If I did something wrong and was trying to explain what happened to my boss .

- If a co-worker was having trouble explaining to the boss, then I could respectfully step in and offer some suggestions

1E: Problem Solving

Answer key:

Learning Activity 1

Answers may vary. Answer should suit the assignment.

1F: Timesheets

Answer key:

Learning Activity 1

1. **15 minutes:** $15 \div 60 = 0.25$
2. **17 minutes:** $17 \div 60 = 0.28$
3. **35 minutes:** $35 \div 60 = 0.58$
4. **45 minutes:** $45 \div 60 = 0.75$
5. **50 minutes:** $50 \div 60 = 0.83$

Learning Activity 2

1. Number of days worked per week: 8 days x 0.5 = 4 hours (lunch time deducted)
2. Total hours worked from 03/08/21 - 03/21/21 (after subtracting unpaid lunch time): 65 hours
3. Total hours Carla will be paid for on her pay cheque: 65 hours

Learning Activity 3

1. $48,000 \div 12 = 4,000$

Answer: \$4,000

2. $7 \times 6 = 42$

Answer: 42 hours

3. $800 \div 32 = 25$

Answer: \$25 per hour

Learning Activity 4

Total Pay on Mario's Pay Stub:

Current earnings: \$487.50

Deductions: \$56.03

1. Total Pay = $\$487.50 - \$56.03 = \$431.47$
2. Pay Period: 03/08/21 - 03/21/21
3. Hours Worked During This Time: 25 hours
4. Mario's Hourly Wage: \$19.50
5. Year-to-Date (YTD) Earnings: \$1,872

Module 2

Equipment and Materials

2A: Ladder Safety Tips

Answer key:

Numeracy

1. a) 3 to 4 feet b) 2 to 2.5 feet c) 5 feet

Multiple Choice

1. c) Inspect for any damage, such as broken rungs or split side rails, and confirm that all locking mechanisms work.
2. c) Setting the ladder up on uneven ground or in front of an open doorway.

3. b) Use approved tie-downs to secure it and prevent it from falling into traffic.

Fill-in-the-Blanks

1. "4 to 1"
2. "3"
3. "two hands" and "one foot"
4. "tool belt"

Finding Information Online

Answers will vary. Please double check the information researched.

2B: 1. Hand Tools – Basic Safety

Answer key:

1. Answers may vary but may include getting splinters in your hand, having the handle break while you are using it, having the hammer head fly off and hit someone when you are using it, etc.

2. tripping, slipping, stepping on something dangerous

3. good condition, away from aisles, defects, you hold your palm open

4. wearing big, bulky gloves carrying tools in plastic bag throwing tools

climbing ladders while using both hands to carry something messy work area

using a wrench as a hammer

2B: 2. Wrenches

Answer key:

1. gripping round things
2. nuts and bolts that have flat, parallel surfaces
3. fixes size
4. pipe, crescent/adjustable

5. metric: whole; non-metric: fractions of an inch
6. It will prevent you from losing your balance and hurting yourself if the wrench slips.
7. Answers for descriptions may vary.

name of fixed-size wrench	description of wrench
open end wrench	jaws with parallel sides or tines that fit on nuts and bolts
closed end wrench or box end	have loops on the ends
combination wrench	have a loop on one end and jaws on the other (open and closed)
socket wrench	like closed wrenches except they are cylindrical in shape
torque wrench	one type of socket wrench, with a spring loaded indicator that shows how much torque is being applied
nut drivers	another type of socket wrench that can be snapped on or permanently fixed to a screwdriver-type handle
Allen wrench or Allen key	hexagon-shaped metal shafts

8. Answers will vary.

2B: 3. Tin Snips

Answer key:

1. shapes, sizes, tasks, handle, finger, thumb, plier, cutting, curves, right
- 2.

Name of snip	Something about this snip
universal snips	can be in both straight and wide curves
straight snips duckbill snips	cut straight lines some duckbill snips are designed for cutting curves
hawk's bill snips	cutting tight circles has crescent-shaped jaws
aviation snips	compound leverage that reduces the effort required for cutting
offset snips	have jaws that are set at an angle from the handle

3.

- Select the right size and type of snips for the job. Check the manufacturer's specifications about the intended use of the snips (e.g., type of cut - straight, wide curve, tight curve, right or left, and maximum thickness, and kind of metal or other material that can be cut).
- Only use snips that are sharp and in good condition.
- Wear safety glasses or a face shield and protective gloves when working with snips. Small pieces of metal may go flying in the air and cut edges of metal are sharp.

4. Left cut snips are for making cuts to the left and straight cuts.

5. Right cut snips are for making cuts to the right and straight cuts.

6. Offset snips permit you to keep your hands safely above the cut while cutting directly through the centre of a large sheet.

7. F, F, T, F, T, T, F

2B: 4 Screwdrivers

Answer key:

1. Answers will vary.

2. easily accessible, able to choose the correct screwdriver for the job

3. Excessive heat can weaken the metal, making it unsafe to use.

4. before

5. Answers will vary.

6. flat, round, pan

7. The shank is size #8 and the screw is 2" long.

2B: 5. Handsaws

Answer key:

1.

3 Pull upwards until blade bites the wood.

2 Start cut carefully and slowly to prevent blade from jumping.

4 Start with partial cut, then set saw at proper angle.

1. Start the cut by placing your hand beside the cut mark with your thumb upright and pressing against the blade.
2. The saw blade starts to cut into the wood.
3. F, F, F
4. Answers will vary.

2B: 6. Pliers

Answer key:

1. gripping, twisting wire, cutting wire
2. to protect yourself from flying particles or pieces of wire
3. dull and worn-down cutting edges require more force to cut
4. make the tools easier to use
5. rock, bend

2B: 7. Clamps

Answer key:

1. hold work securely in place
2. carpentry, woodworking, furniture making, welding, construction, metal working
3. C- clamps, bar clamps, pipe clamps, hand screws
4. strength and weight (e.g., consider rail size and nominal clamping pressure), opening (length of reach), throat depth (depth of reach), ease of adjustment, clamping surfaces (material used and size)
5. use pads
6. F, T, T, F, T

2B: 8. Hammers

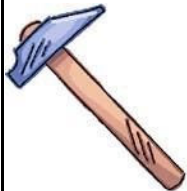
Answer key:

1. general carpentry, framing, nail pulling, cabinet making, assembling furniture, upholstering, finishing, riveting, bending & shaping metal, striking masonry drill and steel chisels
2. Select one that is comfortable for you and that is the proper weight and size for the job.
3. A striking blow hit directly on the wood. The striking face of the hammer is parallel to the wood. Glancing blows are when the striking face is not parallel to the wood.
4. So that you don't hit someone with your hammer.

Name of Hammer	Quick sketch of hammer	Description or Qualities
claw hammer		• heavy enough to drive large nails with ease • claw designed to take out large nails
ball-peen hammer		• “engineer’s hammer” or “machinist’s hammer” • best hammer to use for metal • steel head is harder than a claw hammer which means it’s less likely to chip

5. claw, ball-peen, pin

6.

pin hammer		• lightweight • used to drive small nails, tacks, staples
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7. 7, 6, 1, 4, 2, 3, 5

8. Answers may vary. If you miss the nail and put a dent or a 'bruise' in the wood, you can fix it by soaking the dent with water. This will make the wood swell. Wait for it to dry. Lightly sand the area.

9. A nail punch is a square tipped punch used to drive nails below the surface of the wood. You can also use it to finish hammering a nail in, if you are worried about denting the wood.

2B: 9. Level and Plumb

Answer key:

Learning Activity

1. **Level** means true horizontal.
2. **Plumb** means true vertical.
3. When true level is found the bubble on a level will be in **the middle**.
4. A plumb bob is an old and simple tool that works on the principle of gravity. It is made up of a string and a heavy weight that is pointed on the bottom.

2B: 10. Table Saws

Answer key:

1. when the wood can be violently thrown back toward the operator
2. when you have a long piece of wood and need help to support it, it acts as another pair of hands. It is generally the same height as the table saw and works to lengthen the area you can support.

3. when ripping narrow or short stock, when the piece is less than 30 cm (12") long or when the last 30 cm (12") of a longer piece is being cut

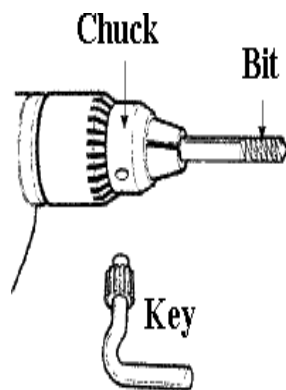
4. Answers may vary.

May include you could cut yourself; you could catch your sleeve in the saw, you could jam up the blade, someone else could cut themselves on the saw if they didn't notice it running.

5. Answers may vary.

2B: 11. Drills

Answer key:



1. Learners should use the internet to find and print a photograph of a drill and a chuck. These pages should go into their binder with the drills information.
2. Answers will vary. 'Turning true' means that it turns accurately, in correct position, balanced, level. If learners have a hard time articulating this, have them look up the word 'true' in the dictionary.
3. Answers will vary.
4. You should clamp small pieces of wood, so they won't twist or spin. Do not drill with one hand while holding the material with the other. These rules are important because if the wood twists or spins, it is out of control and could become dangerous. If the piece of wood is small and you are holding it with one hand, it means that your hand

is close to the drill bit. This could be dangerous. If you are holding the piece of wood with one hand and you haven't clamped the wood down, it could start to spin and knock your hand into the drill bit.

5. Answers will vary.

2B: 12. Sanders

Answer key:

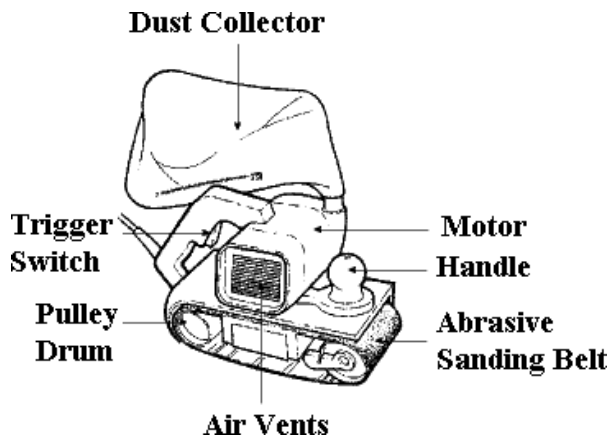
1. Goggles offer more protection as they have side pieces that will stop particles from hitting you in the eye. Glasses only offer protection from head-on.
2. hearing, dust masks
3. Because the belts are turning very fast, and it is easy to slip and catch your fingers on the belts. They can, very quickly, sand you skin off leaving you with a very painful wound.
4. They can get caught and pulled by the sander belts and pulleys that are in motion.
5. Answer may vary. Use of diagram may vary.

You should hold the piece of wood on the downward side of the belt so that the motion of the wheel forces the wood down onto the table by the machines rotation. If you were to sand on the other side, it is very easy for the machines rotation to catch the piece you are sanding and very quickly jerk it away from you. It could fly across the room and hurt someone. The jerking motion is very sudden and could pull your fingers into the sander.

2B: 13. Belt Sanders

Answer key:

1.



2. Answers will vary. Breathing wood dust is very dangerous for your health.

3. The weight of the sander is enough pressure to get the job done.

2B: 14. Routers

Answer key:

1. Answers will vary.

2. Freely

3. Answers will vary. You should never put your fingers near a part that has the potential to move unless the power supply is disconnected. If the power button accidentally gets turned on, you could injure yourself.

4. No, it is not ok to have someone else hold the piece of wood for you. Sudden torque or kickback from the router can cause the wood to suddenly move. The wood could hit you or your helper. Also, when the wood moves, it leaves your fingers and hands very close to the bit. This could be very dangerous.

5.

Kind of wood	Speed of cutting
--------------	------------------

Softwood	you can sometimes move the router as fast as it can go
Hardwood, knotty, or twisted pine	cutting may be very slow

6. makes a high pitched whine

7. makes a low growling noise

2B: 15. Band Saws

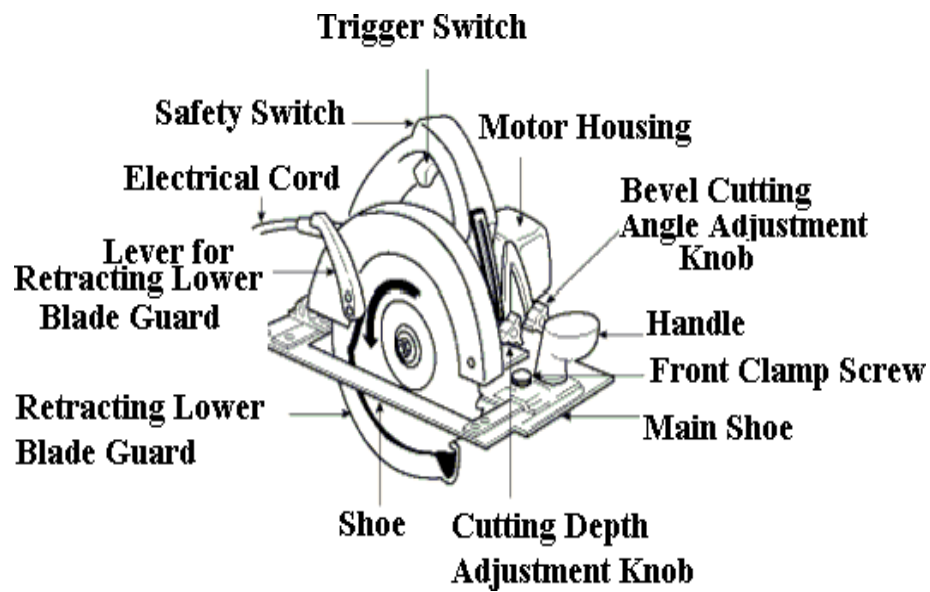
Answer key:

1. to decrease vibration
2. 3 mm or 1/8"
3. Answers will vary. To remove cut pieces from between the fence and saw blade or when your hands are close to the blade.

2B: 16a. Circular Saws

Answer key:

1. Sharper blades work better and are safer.
2. right, left
3. unplugged, 0.3 cm, 1/8"
4. safety goggles or face shield, respirator or dust mask, hearing protection
5. T, F, F, T, T, T
- 6.



7. done on individual basis

2B: 16b. Circular Saws - Pocket Cuts

Answer key

1.

- 4 Lower saw until front teeth **almost** touch wood.
- 7 Keep the saw tilted forward and push it down and forward with even pressure, gradually lowering it until the shoe rests flat on wood.
- 1 Tilt saw forward.
- 5 Release guard to rest on wood.
- 6 Switch on the saw.
- 2 Rest front of shoe on wood.
- 3 Retract lower guard.

PPE**Why do I need to use it?**

hard hat	mandatory on construction site
safety boots	mandatory on construction site
eye protection	should be worn at all times
respiratory protection	protects against dust
hearing protection	should be used especially if you are cutting for long periods of time

2B. 17. Mitre Saws

Answer key:

1. trigger switch, stock
2. make sure the saw is in the off position before plugging it in
3. sparks may ignite the fumes
4. Don't cut free hand. The stock should lie solidly on the table against the fence.

2B: 18. Push Blocks / Push Sticks

Answer key:

1. table saw, radial arm saw, jointers/planers, shapers
2. Answers will vary.

A push block is used to move a piece of wood along a machine, where you do not want to use your hand. It keeps your hands and arms safely away from the blade.

3. A side push block is used to hold the wood against the blade, and a frontal push block is used to push the wood through the blade.

2B: 20. Pneumatic Tools - Basic Safety

Answer key:

1. Compressed air
2. buffers, nailing guns, stapling guns, grinders, drills, jack hammers, chipping hammers, riveting guns, sanders, and wrenches
3. To protect people from flying fragments, chips, dust, or excessive noise. Tag and replace.
4. You could blow debris, dust, or particles into your eyes or skin. The compressed air is moving very fast, and the air alone could damage your eyes.

2B. 20b. Pneumatic Nailing and Stapling Tools

Answer key:

1. - check tool safety mechanisms
- tighten securely all screws and cylinder caps

2. Answers will vary. The tool could go off. If you know a tool is loaded, you handle it with more care in case it fires off. You need to treat every tool as if it were loaded. Never assume a tool is empty.

2C. Construction Machines on the Job Site

Answer key:

1. Answers will vary.
2. Answers will vary.

It is important to know what these machines do so that you can anticipate their movements. Knowing if a certain machine swings or swivels or has an arm that moves up and down, will help you to stay out of the way and stay safe.

3. A bulldozer pushes rocks, earth, mud, etc. They are also used to level the ground. Bulldozers come in different styles and sizes. They are made to do different types of jobs.

The loader is used to carry things like rocks and dirt. It then dumps the load into dump trucks. There are different types of wheel loaders, designed to do work in different conditions. The bucket can also be replaced with other equipment.

The excavator can dig, level, and load materials. To *excavate* is to dig out and leave a hole. A backhoe is an excavator.

A dump truck is used to carry things like dirt and rocks.

Cement mixers carry concrete to the job site. The tank rolls continuously to keep the cement from hardening.

Cranes are very useful for lifting things that are very heavy. They can lift things up very high.

2D: Blueprints and Drawings

1. They incorporate all the details required for the Tradesperson to follow the architect's plans for the building.
2. It ensures the building is built according to budget. A mistake in construction could cost thousands of dollars.

3. The blueprint is a detailed drawing for the tradesperson to follow with pipe runs and wiring diagrams. The floor plan gives the dimensions of the rooms and location of fixtures and appliances without pipe runs and wiring diagrams.
4. Usually as a drawing for owners or purchasers to follow. They outline the locations of appliances and fixtures.

Module 3

Numeracy

3A: Imperial Measurement

Answer key:

Learning Activity 1

$$4' = 48'' \quad 9' = 108''$$

$$5' = 60'' \quad 10' = 120''$$

$$6' = 72'' \quad 11' = 132''$$

$$7' = 84'' \quad 12' = 144''$$

$$8' = 96''$$

Learning Activity 2

$$1. \quad 5' \frac{3}{4}'' = \underline{60 - \frac{3}{4}''} \quad 11. \quad 7' \frac{7}{8}'' = 84 - \frac{7}{8}''$$

$$2. \quad 3' \frac{5}{8}'' = 36 - \frac{5}{8}'' \quad 12. \quad 2' \frac{1}{16}'' = 24 - \frac{1}{16}''$$

$$3. \quad 8' 2\frac{1}{4}'' = 98 - \frac{1}{4}'' \quad 13. \quad 4' 4\frac{1}{8}'' = 52 - \frac{1}{8}''$$

$$4. \quad 10' 2\frac{2}{3}'' = 120 - \frac{2}{3}'' \quad 14. \quad 6' \frac{7}{16}'' = 72 - \frac{7}{16}''$$

$$5. \quad 5' \frac{7}{8}'' = 60 - \frac{7}{8}'' \quad 15. \quad 8' \frac{7}{8}'' = 96 - \frac{7}{8}''$$

6. $1' 5\frac{1}{8}" = 17 - \frac{1}{8}"$ 16. $2' 8\frac{3}{4}" = 32 - \frac{3}{4}"$

7. $4' 5\frac{5}{8}" = 48 - \frac{5}{8}"$

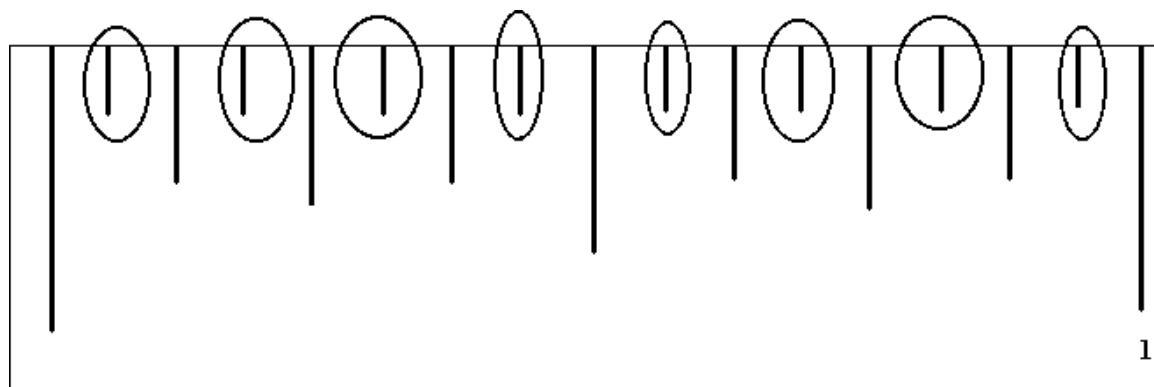
8. $6' 9\frac{9}{16}" = 72 - \frac{9}{16}"$

9. $7' \frac{1}{2}" = 84 - \frac{1}{2}"$

10. $8' 6\frac{5}{16}" = 102 - \frac{5}{16}"$

Learning Activity 3

How long is the item you are measuring? $\frac{11}{16}"$



* enlarged inch measure

Learning Activity 4

Answers will vary.

$2 \frac{5}{16}"$

$4 \frac{1}{8}"$

$4 \frac{11}{16}"$

$3 \frac{3}{8}"$

$3 \frac{13}{16}"$

$4 \frac{7}{16}"$

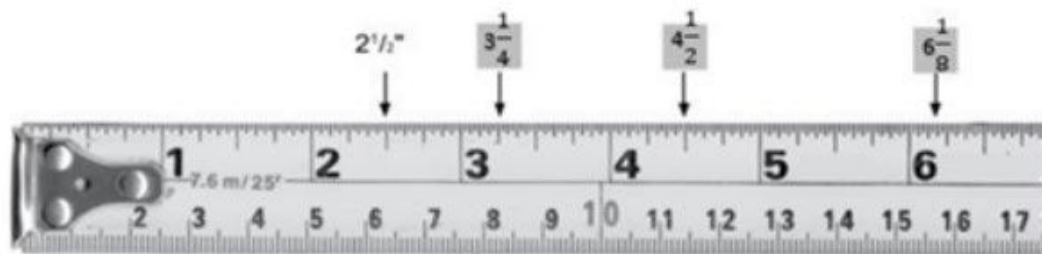
$4 \frac{9}{16}"$

Learning Activity 5

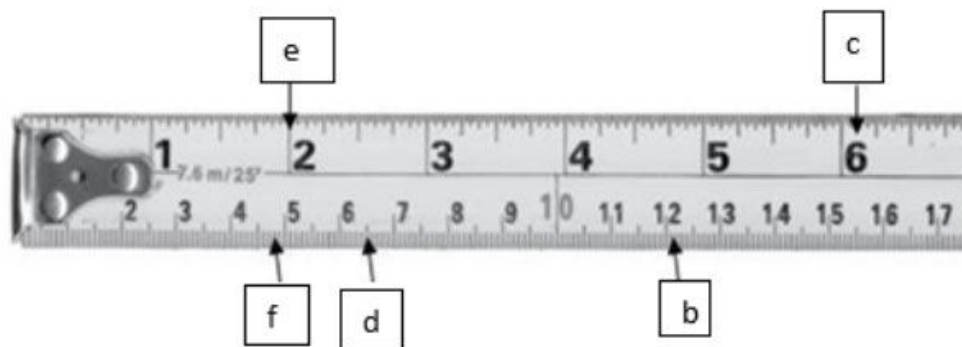
Answers will vary.

Learning Activity 6

1.



2.



3A: Metric Measurement

Answer key:

Learning Activity 1

Measure for 1 cm.

Learning Activity 2

A = 2 cm E = 9.4 cm

B = 3.5 cm F = 12.2 cm

C = 6 cm G = 14.7 cm

D = 7.8 cm

Learning Activity 3

4 cm, 11.2 cm, 5.3 cm, 4.4 cm

Learning Activity 4

2 cm, 10 cm, 7.6 cm, 5 cm, 18.5 cm, 12.4 cm, 4 cm, 11 cm, 5.7 cm, 3 cm

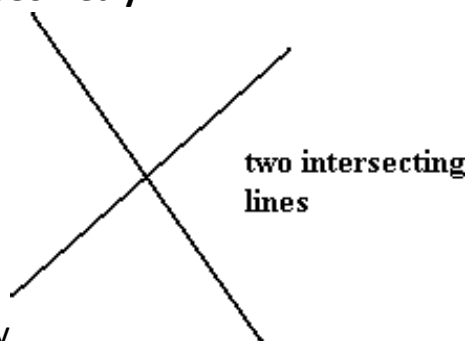
Learning Activity 5

1 m, 2 m, 5 m, 8 m, 7 m, 3 m, 6 m, 4 m, 9 m

Learning Activity 6

Answers will vary.

3B: Basic Geometry



Answer key

Geometry Answers

Learning Activity 1

1. Geometry is the study of **lines**, **points**, **shapes**, and **angles**.
2. When two lines cross over one another, they **intersect**.
3. When lines cross over one another, they form **angles**.
4. The names of the four angles formed are:
 - ? **HIM**
 - ? **HIL**
 - ? **LIM**
 - ? **LIH**
5. Angles are measured in **degrees**.
6. The symbol for degrees is **°**.

7. There are **180 degrees** in a straight line.
8. There are **360 degrees** in a circle.
9. A "180" means John turned his truck around in a **180-degree** angle, which is a half-circle or a straight line. This is related to geometry because it involves angles and direction.

If John had done a "360", it would mean he turned his truck around in a full circle, ending up in the same direction he started.

10. The tool used to measure angles is a **protractor**.

Measure these angles:

Have a learner use a protractor to measure each angle in this activity. Marks awarded for being able to properly use a protractor.

Learning Activity 2

1. Answers will vary depending on angles drawn by the learner. Learner is awarded marks for accurately using a protractor to measure the angles they have drawn and for drawing 8 angles.
2. The three most commonly cut mitre saw angles are 90°, 45°, and 22.5°. (This information was not in the text you provided, but it is generally true).

Learning Activity 3

1. Parallel lines are lines that **will never cross or intersect**.
2. Two parallel lines should be drawn.
3. Two lines drawn that are not parallel will intersect.

If you kept drawing these lines, they would eventually **intersect**.

4. Examples of objects with parallel lines:
 - Book
 - Desk
 - Picture frame

- Door
- Window
- Chair

Learning Activity 4

Name of shape	Information about shape
Square	All four sides are of equal length. All angles are 90° .
Rectangle	Opposite sides are of equal length. All angles are 90° .
Triangle	A three-sided enclosed shape.
Parallelogram	Opposite sides are parallel and are equal lengths. Opposite angles are the same.
Trapezoid	One pair of the lines are parallel, the other set are not.
Pentagon	A 5-sided polygon.
Hexagon	A 6-sided polygon.
Octagon	An 8-sided polygon.

Answers should include correct drawings of shapes for full marks.

3C: Fractions and Decimals

Answer key

Learning Activity #1

1. a) 10 b) $9\frac{7}{8}$ c) $5\frac{11}{16}$ d) $8\frac{5}{16}$

Learning Activity #2

1. a) 15.75 b) 9.99 c) 24.11 d) 65

Learning Activity #3

- a) 0.6875 b) 0.875 c) 0.75

- a) $10 \frac{7}{8}$ b) 10.875

3D: Circles - The Basics

Answer key:

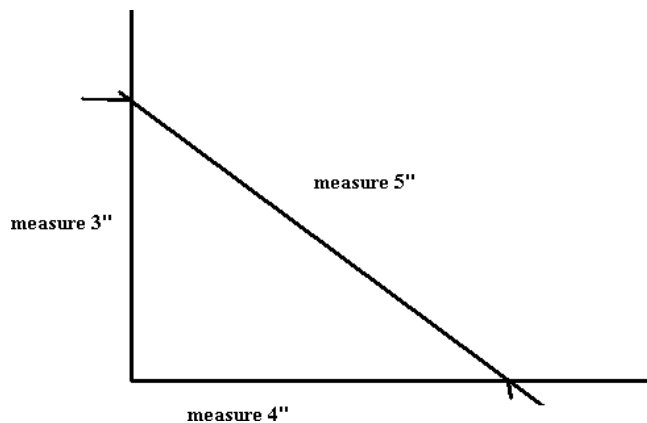
- A. 12.56"
- B. 21.98"
- C. 25.12"
- D. 31.4"
- E. 37.68"

3E: 3 / 4 / 5 Rule for Making Square Corners

or Pythagorean Theorem

1. Answers will vary.
2. The 3/4/5 rule is used to make things square: a foundation, deck, or anything else that you want to make square.
3. Pythagorean
4.
 - B. 18/24/30
 - C. 15/20/25
 - D. 27/36/45
 - E. 6/8/10
 - F. 12/16/20
 - G. 21/28/35

5.

**3F: Calculations at Work**

Answer key:

Learning Activity #1

- A. 130 square feet.
- B. 168 square feet
- C. 8 square inches

Learning Activity #2

$$A = L \times W \quad A = 8 \times 6$$

$$A = 48 \text{ square feet}$$

$$48 \text{ square feet} \times \$7.00 \text{ per square foot} = \$336.00.$$

Learning Activity #3

1. $A (\text{wall 1}) = 12 \times 10 = 120 \text{ square feet}$
 $A (\text{wall 2}) = 12 \times 10 = 120 \text{ square feet}$
 $A (\text{wall 3}) = 11 \times 10 = 110 \text{ square feet}$
 $A (\text{wall 4}) = 11 \times 10 = 110 \text{ square feet}$
2. Total area = $120 + 120 + 110 + 110 = 460 \text{ square feet}$
3. Total paint = $460 \div 110 = 4.18 \text{ litres}$

4. No.

Module 4

Health and Safety

4A: Electrical Safety

Answer key:

1. cause death by electrocution
2. You could come in contact with the “hot” or live part of the socket which could kill you.
3. electrocution, electric shock, burns, falls
4. Muscle contractions, or a startle reaction, can cause a person to fall from a ladder, scaffold, or aerial bucket which could cause serious injuries.
5. walls, floors, staples, fire, shock
6. unsafe wiring conditions exist
7. Wood is non-conductive. It doesn’t allow electricity to pass through it very easily.
8. F, T, F, F, T
9. Answers will vary but should include one of the following:

Inspect Cords and Plugs

- Check power cords and plugs daily. Discard if worn or damaged. Have any cord that feels more than comfortably warm checked by an electrician.

Eliminate Octopus Connection

- Do not plug several power cords into one outlet.
- Pull the plug, not the cord.
- Do not disconnect the power supply by pulling or jerking the cord from the

- outlet. Pulling the cord causes wear and may cause a shock.

Never Break OFF the Third Prong on a Plug

- Replace broken 3-prong plugs and make sure the third prong is properly grounded.

Never Use Extension Cords as Permanent Wiring

- Use extension cords only to temporarily supply power to an area that does not have a power outlet.
- Keep power cords away from heat, water, and oil. They can damage the insulation and cause a shock.

4A: Fire Extinguishers

Answer key:

1. Answers will vary.

2.

- where flammable materials are
- where temporary gas or oil fired equipment is stored
- where welding or open flame cutting is being done
- on each story of a building under construction
- for at least 325 square metres

3. A, C, B, D

4. Pull the pin.

Aim the nozzle at the base, or bottom, of the fire. Direct the spray back and forth.

Squeeze the trigger.

Sweep from side to side until the fire is out.

5. Answers will vary.

4A: General Safety Tips

Answer key:

1. If you have trouble hearing someone speak from 3' (1 m) away, the noise level from the machine is too high. Damage to hearing may occur.
2. They could get caught in the blade while it is turning.
3. Answers will vary.
4. Answers may vary.

The working space has to be big enough so that you can move around and move the piece of wood around that you are cutting. If the space is too small, you could bump someone and that could cause them to injure themselves on a machine.

5. keep area free of clutter clean the area
sweep area should be well lit
clean up spills floors should be level
floors should be non-slip workplace design
good housekeeping
6. They could get caught in the workings of the machine.
7. Answers will vary.
8. Answers will vary.

4B: Personal Protective Equipment

Answer key:

Learning Activity#1

Hazard = a danger Potential = possible

Precaution = something you can do to reduce risk Harmful = dangerous

Maintained = kept in good condition

Restrict = To reduce; make more difficult; not allow Durable = long-lasting

Fatal = causes death

Learning Activity #2

1. Hazard assessment
2. a walk through the worksite to develop a list of potential hazards.
3. sources of potential injury from impact, penetration, harmful dust, chemicals etc.
4. carpenters, pipe fitters, electricians, plumbers and their assistants
5. injuries can be fatal or cause permanent damage to employees.
6. impact-resistant toes, metal insoles, heat-resistant soles.
7. Learner uses a device to search one or both of the websites selling PPE for women in the trades. Learner creates a list of items available for women on the sites.

4C: Risk Management

Answer key:

1. T, F, F, T, F, T
2. Answers will vary. May include the following:
 - Risk management is something you can do...every day, all day. Always be on the lookout for situations that could be dangerous.
 - Safety does not just happen. It takes workers who are committed to making their sites as safe as possible.
 - Your job is to look at every situation. Think 'what could go wrong?' What accidents might happen and what the consequences of that accident would be, and then go back and change the situation to make it as safe as possible.

4D: Contact Lenses at Work

Answer key:

- 1.

PRO (for)	CON (against)
may prevent some substances from reaching the eye, minimizing an injury	dust and chemicals get trapped behind lens
	Gases and vapours cause irritation
	removal of lenses delays treatment after a chemical splash

2. complicate eye safety
3. personal protective equipment or PPE
4. chemical exposure chemical splash tiny particles in the air
infrared rays intense heat dry air
flying particles caustic substance

4E: Slips, Trips and Falls

Answer Key

Learning Activity#1

1. Attention, walking
2. Slips, friction, traction, surface
3. Personal Protective Equipment
4. Wind, snow, ice, rain, sun, hail, sleet etc.
5. Small, rugs, trip
6. Wet, slippery, dry
7. Ladder, three
8. hand railing

Learning Activity#2

1. A substance, such as sand, used for polishing or removing a surface.
2. correct or suitable
3. A state where all parts have the proper weight; centred
4. a mess: things scattered around in a disorderly way.
5. The rubbing, often repeated, of two surfaces together
6. something that stands in the way and prevents action or movement

7. showing resistance to
8. one of the cross bars that forms the steps of a ladder
9. environment; the things around you
10. the force that prevents you from slipping on a surface

4G: WHMIS Overview

Answer key:

Vocabulary Questions

1. a
2. b
3. b
4. c

True/False Questions

1. True
2. False
3. True
4. True

Reading Comprehension Questions

Sample answers

1. WHMIS is designed to protect workers by providing information about hazardous materials in the workplace to ensure their health and safety.
2. The three main areas of WHMIS are labels (for initial warnings), SDSs (for detailed information), and worker training (to ensure understanding and proper use of the information).

Physical Hazards (Flammable Liquids), 2) Health Hazards (Toxicity), 3)

Environmental Hazards (Harmful to Aquatic Life), 4) Corrosive Materials (Acids), 5) Explosives (Dynamite), 6) Oxidizers (Hydrogen Peroxide).

3. Labels provide immediate hazard warnings, while SDSs offer comprehensive information necessary for safe handling and emergency response.

Matching Questions

Answer Key

SDS Section	Description
A) Identification	4) Includes the product name, synonyms, recommended use, restrictions, and the supplier's contact information.
B) Hazard Identification	3) Describes the product's hazards, including classification, label symbols, signal words, and precautionary statements.
C) Composition/ Information on Ingredients	2) Lists ingredients, including chemical names, common names, CAS numbers, and concentrations of hazardous substances.
D) First-Aid Measures	1) Provides first-aid instructions for exposure through inhalation, skin contact, eye contact, and ingestion.
E) Fire-Fighting Measures	5) Outlines suitable extinguishing media, specific fire hazards, and protective equipment for firefighters.
F) Accidental Release Measures	6) Details precautions, protective equipment, and cleanup methods for spills or leaks.
G) Handling and Storage	7) Gives safe handling practices and storage conditions, including incompatible materials.
H) Exposure Controls/Personal Protection	8) Recommends exposure limits, engineering controls, and personal protective equipment (PPE).
I) Physical and Chemical Properties	9) Lists key physical and chemical properties such as state, color, odor, melting and boiling points, and flammability.

- J) Stability and Reactivity 10) Describes the product's stability, potential hazards, conditions to avoid, and incompatible materials.

4H: Ergonomics

Answer key:

Learning Activity #1

Posture = the way you stand (straight, hunched over etc.) Joint(s) = the places where your body bends (knees, elbows etc.) Slouching = Not standing up straight

Conveyor = A belt along which objects move

Varicose veins = dark blue veins that stick out, caused by poor circulation Fatigue = tiredness

Learning Activity #2

1. muscle and joint strain and pain; repetitive strain injuries
2. Answers may vary. See list- by stretching, practice good posture etc.
3.
 - CSA certified
 - soles should be flat
 - there should be good arch support
 - Learner is able to find the website

<https://myhealth.alberta.ca/Health/pages/conditions.aspx?hwid=hw206944>

and discusses the following with an instructor or a classmate.

1. How they **currently** lift items - how they do it now.
2. Anything they need to start doing differently.
3. How they can change how they lift to protect themselves better.

4I: Employee Rights

Answer key:

Learning Activity #1

1. Whether too busy or not, Paul knew that the shelves were not strong enough to hold the material, that it was too high and that he could be hurt by falling items or falling himself by trying to climb onto the shelves to stack them.
2. More shelving needs to be installed. Whoever stocks the shelves must use a ladder, not a footstool.

Learning Activity #2

1. Answers will vary.
2. Answers will vary.

Learning Activity #3

1. (b)
2. (a)
3. (c)
4. The Ministry of Labour
5. (a), (b), (d)
6. (c)
7. To help sick and injured workers return to work safely and quickly.

Learning Activity #4

Part 1

1. (e)
2. (d)
3. (c)
4. (f)
5. (g)
6. (a)
7. (b)

Part 2

Answers will vary for questions 1 and 2. Marking is at the discretion of the instructor.

Answers **should** reference the table about workplace harassment from the reading and explain why each solution was chosen.

Module 5

Teamwork: Collaboration and Communication

Answer key:

Learning Activity 1

1. Answers will vary; learners might suggest speaking with the trainer or finding ways to work together professionally despite differences.
2. Answers will vary; learners may suggest respectfully discussing the feedback with the boss or finding ways to improve regardless of personal opinions.
3. Answers will vary; learners could mention seeking a shift swap, discussing options with their supervisor, or deciding to prioritize their work commitment.
4. Answers will vary; learners might mention presenting their idea to the team or respectfully following the current method while making a note of their idea for later.
5. Answers will vary; learners might create unique job titles or roles reflecting their skills or interests.

Learning Activity 2

- Answers will vary; possible responses might include:
 - "Hello! Welcome to the team. Is there anything you need help with?"
 - "It's great to have you here. I would love to hear about where you are from if you would like to share."

Learning Activity 3

1. Answer: **a. So that everyone feels valued and comfortable while doing their work**
2. Answer: **True**
3. Answer: **False**

Learning Activity 4

1. Using Google Translate or a Voice Assistant to Translate Words:

- **Hammer:** *(Language chosen and translation based on the learner's choice)*
- **Screwdriver:** *(Language chosen and translation)*
- **Wrench:** *(Language chosen and translation)*

2. Learning About Cultural Differences Using AI Programs:

Sample answer:

Five interesting things I learned about different cultures

- Greetings vary significantly; for instance, some cultures bow, while others shake hands.
- In some places, holidays are deeply tied to religious customs, like Diwali in India or Ramadan in Muslim countries.
- The concept of personal space differs; some cultures value closeness while others prefer more distance.
- Meal customs, such as eating with chopsticks or using hands, vary globally.
- Celebration of seasons, like Cherry Blossom Festivals in Japan, show appreciation for nature and beauty.

Learning Activity 5

Choose 3 Reliable Employees and Provide Reasons:

Sample answer:

1. **Alex:** Alex consistently wears safety gear and keeps hydrated, which shows responsibility toward both personal safety and setting a good example for others. Their focus on health and safety makes them a dependable team member.
2. **Carla:** Carla carefully checks and adjusts her tools, which shows she values quality and precision in her work. This reliability in preparation ensures her work is safe and accurate.
3. **Emily:** Emily maintains a clean job site, showing dedication to organization and safety, which are critical in preventing accidents and ensuring an efficient work environment.

Employee I Would Not Want on My Team:

Sample answer

- **Frank:** Frank frequently uses his phone on the job, which can create distractions and affect productivity. His complaints may also bring down team morale, making him a less reliable choice.

Learning Activity 6

Example of Feedback in the Landscaping Situation:

- “I’m really impressed by how quickly and efficiently you’ve planted the flower beds and shrubs! I think we might want to double-check the spacing to match the company’s guidelines, so the plants have room to grow. Great teamwork so far—this project is coming along nicely!”

True or False Questions

2. **True** - It’s important to stay calm and not take feedback personally when receiving it from supervisors.
3. **False** - The Nice Sandwich approach starts with a compliment, then a suggestion, and ends with another compliment.
4. **True** - Giving feedback should include what was done well before suggesting improvements.

5. **True** - When receiving feedback, it's important to listen carefully and be open to suggestions.
6. **False** - It's common to receive feedback at work; it should be taken constructively, not as personal criticism.

Learning Activity 7

Sample answers:

1. How I Handle Stress:

- I manage stress by taking short breaks, practicing deep breathing, and focusing on one task at a time. I find that regular exercise and a healthy sleep schedule help me stay calm and focused.

2. Importance of Calming Down Before Responding:

- Responding while too angry can lead to misunderstandings and further conflict. Taking a moment to calm down helps me approach the issue more rationally, which is better for maintaining positive working relationships.