Construction Safety Training System

Study Guide

Strategies to help newcomers take the CSTS-09 course

AWES
Alberta Workforce Essential Skills

Government of Alberta
Human Services

ACSA
Alberta Construction Safety Association

Contents

Introduction

The CSTS-09 (Construction Safety Training System) is an online learning course for construction workers. It is for new workers to the industry, or workers who have not had formal safety training. The CSTS-09 has basic health and safety training information.

Many employers within the construction industry expect you to take the CSTS-09 training to show that you understand safety issues and that you know how to work safely. Remember, once you have taken this training, you will be able to add it to your resume when you apply for future jobs.

This CSTS-09 Study Guide will help you prepare for the online CSTS-09 test. If English is not your first language, this Study Guide is for you. It will help you learn:

- how to use the CSTS-09 computer program
- how to answer the questions in the quizzes (tests)
- important safety vocabulary
- the main ideas in the 15 modules and 81 lessons

This Study Guide is your first step to taking the CSTS-09 online test. Once you go through this Study Guide, the material in the online CSTS-09 course will be much easier for you to understand. It will help you to remember safety words and ideas at work. More importantly, everything you learn about safety (in English) will help you to do your job safely.

Questions about the CSTS-09

Where can I take the CSTS-09?

- You can go to any of the Alberta Construction Safety Association (ACSA) campuses in Edmonton, Calgary, or Fort McMurray. The ACSA offices have computer stations set up for you to take the CSTS course. For more information, go to: www.acsa-safety.org
- You can take the course online at work or at home, by registering with ACSA.
- You can go through a college or other safety training centre that partners with ACSA.

How long does the CSTS-09 take?

Most people usually take 6 to 8 hours to finish. There is no time limit which means you can go at your own pace. You can take as much time as you need to learn during the test by listening to the videos, reading the text, and taking the quizzes.

How is the CSTS-09 organized?

The online course is organized into 15 modules, 81 lessons and 97 quizzes.

- Each module has between 4 and 8 lessons. You need to complete each lesson. Each lesson takes about 5-minutes to finish.
- Each lesson has a short quiz (between 2 and 5 questions) at the end. It tests you on the safety information of that lesson.
- There is also a quiz at the end of each module. It tests you again on all the lessons in that module.

How should I use this study guide?

Study step 1

First, read the **List of Modules and Lessons in the CSTS-09** in the Materials below. You need to have a general idea of the safety topics you will study.

Study step 2

Then, look through the section called **How to Use the Computer Program**. There is a picture of what the program looks like on a computer screen with instructions on how to move around. Reading this section will give you confidence using the computer program and you will be able to focus on the information..

Study step 3

Next, read the section called **Quiz Taking Strategies** to learn how to answer these different types of questions:

- Multiple choice
- True or false
- Choosing the correct image
- Interactive activities

Study step 4

Now you are ready to go to the **Modules and Lessons** section. Most lessons have a list of important English words, and each lesson summarizes safety facts in the main point.

Read the Vocabulary Section for each lesson. Some of the later lessons only have a main idea because the vocabulary has already been mentioned in a previous lesson. These are the words you must know and understand for the lesson. You will hear these words many times in the CSTS course. You will also hear these words at work. Learn them well so you know what to do and how to respond when you hear them. Once you read this section, the main point and the rest of the information in the CSTS lesson will make sense.

Study step 5

Go back now and see which words or ideas you still need to work on. You must know these safety words and instructions to do your job really well. You need to learn and remember these safety words because you will hear them often. Your supervisor will use them at safety meetings. Your coworkers will use them on the job site. That is why they are in the CSTS-09 test.

These tips may help you as you work to understand the safety words and ideas:

- Ask your coworkers and your supervisors to explain words and ideas about safety to you.
- Use a notebook to write down the new words and ideas. Study them on the way to work, during coffee breaks or lunchtime.
- Work in a group with other newcomers. Learn about safety together.
- Use a dictionary to find the meanings of words you don't understand.

Materials

Study step 1:
Read the list of modules and lessons in the CSTS-09

The CSTS has 15 large sections called modules. Each module is divided into lessons. Each lesson takes about 5 minutes to finish.

Modules		Lessons
1	**Your Worksite and the Law**	• Legislation Awareness • Employer Responsibilities • Employee Responsibilities • Training and Competency • Reporting Requirements • Communication
2	**Personal Physical Care and Conduct**	• Fitness for Work • Working Outdoors • Fatigue Management • Stretching and Micro-breaks • Back Care • Personal Conduct • Drugs and Alcohol • Alcohol and Drugs Guidelines / Work Rule
3	**Personal Protective Equipment (PPE)**	• PPE Defined • Basic PPE • Use and Care of PPE • Specialized PPE • Clothing
4	**Workplace Hazards**	• Hazard Assessment • Causes of Workplace Hazards • Inspections • Investigations • Invisible Hazards • Confined Spaces • Respiratory Hazards • Hazard Control
5	**Field Level Hazard Assessment (FLHA)**	• What is a FLHA • STOP and Think • Look and Find Hazards • Assess Hazards • Controlling Hazards • Resume Work

6	**Workplace Hazardous Materials Information System (WHMIS)**	• Purpose of WHMIS • WHMIS Responsibilities • Labels • MSDS (Material Safety Data Sheet) • Hazard Symbols • Protecting Yourself
7	**Worksite Conditions**	• Housekeeping / Cleaning Up • Slips, Trips and Falls • Signs and Entryways • Compressed Gases
8	**Environmental Factors**	• Dealing with Releases • Laws and Regulations • Classification, Storage and Disposal • Safeguards
9	**Fall Protection**	• Introduction to Fall Protection • Methods of Fall Protection • System Selection • Arrest Forces, Anchorage and Connectors • Full Body Harness and Equipment Inspection • Conclusion
10	**Emergency Response**	• Emergency Preparedness • First Aid • Fire Safety • Fire Extinguishers • Fighting Fires
11	**Ladders and Scaffolding**	• Ladders • Portable ladders • Scaffolding • Working from Scaffolds
12	**Mobile Equipment**	• Responsibilities • Operating Procedures • Hazards to Be Aware Of • Visibility and Traffic Control • Rigging and Hoisting
13	**Machinery, Tools and Equipment**	• Inspecting Equipment • Electrical tools • Pinch Points and Guards • Air Activated tools • Powder Actuated Tools
14	**Excavating and Trenching**	• Potential Causes of Injury • Dial Before You Dig • Soil Types and Ground Conditions • Shoring, Cutbacks and Spoil Piles
15	**Defensive Driving**	• The Basics • Impairments • Animals • Loading vehicles • Cell Phones and Other Communication Devices

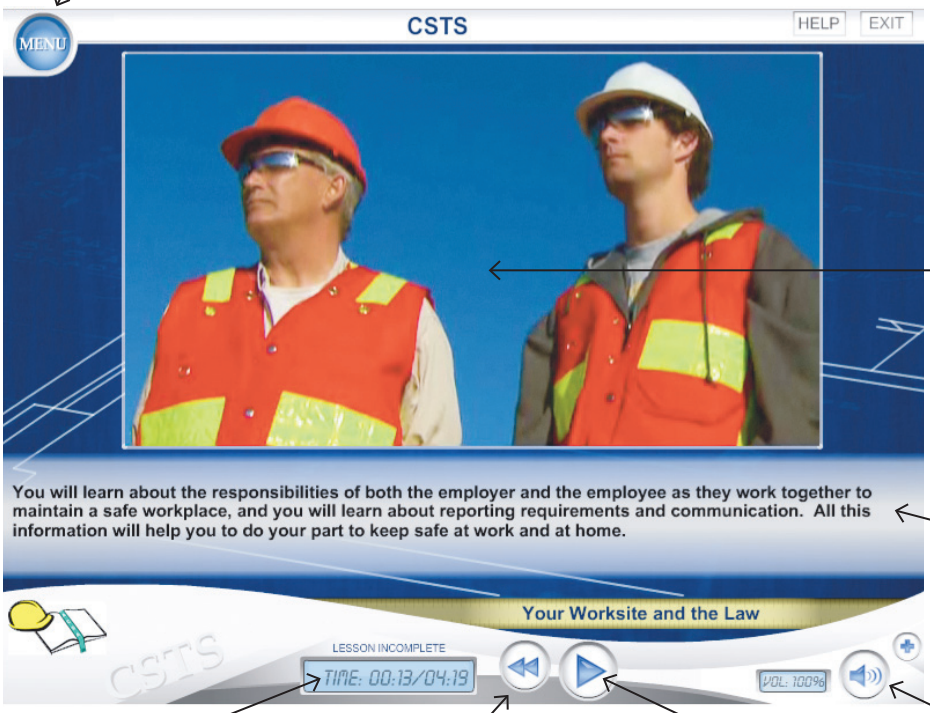
Study step 2:
Know how to use the computer program

This picture is from one of the lessons from the CSTS-09 on-line course. The information around the picture explains how to use the icons (buttons) for the computer program. Make sure you know how to use the most important icons: MENU, VOLUME and PLAY/PAUSE.

Menu
Click on this to go to the list of modules and lessons. See below for more information on the Menu.

Help
Click the HELP icon if you forget how to use the computer program.

Exit
Use the EXIT icon to leave the course. If you exit the course, the computer program will remember where you are in the test. When you come back, it will take you back to where you stopped.



Video
A video will play for each lesson. You can pause the video at any time. Use the blue play/pause icon at the bottom.

Script
You will be able to read as you listen. You can pause at any time.

Volume
Click to make the sound louder or softer. Click on the speaker icon to turn off the sound.

Time Tracker
This box at the bottom of the screen tells you how long you have been working on a lesson.

Rewind
Click to see any part of a lesson again. You can rewind during any lesson, but you cannot rewind if you have started a quiz. If you have started a quiz, you have to go back to the very beginning of the lesson.

Play/Pause
Use the play/pause icon to pause the video and script at any time.

The MENU Icon

The MENU icon is in the top left corner of the CSTS screen. When you click on MENU, the computer will give you a list of modules and lessons. Use the menu to choose which module you want to do first.

You can begin with any module. Most people start with "Your Worksite and the Law," but you don't have to. Click on the module you want to study and then click on the lesson you want to do.

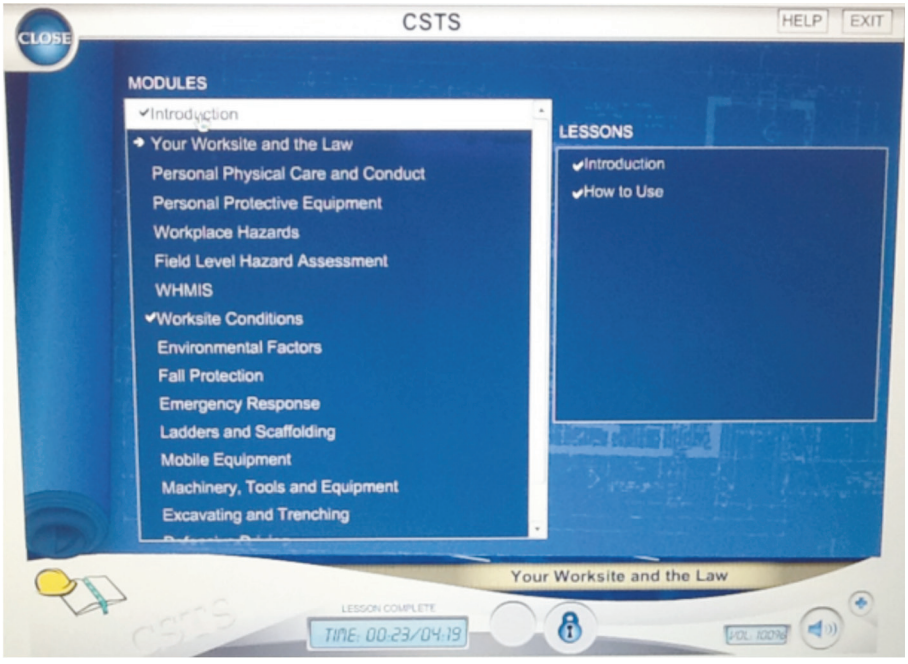
The first and the last modules do not have any quizzes. They just give you information about how to take and finish the CSTS-09 course.

This is what the MENU list looks like.

The 15 Modules are in the left column.

The Lessons are in the right column.

In this example, you are looking at the Introduction Module and the two lessons are Introduction and How to Use. The Introduction Module is highlighted in white.



There is a check mark (✓) in front of the Introduction module and the Worksite Conditions module. The checkmark means you have finished the lessons and quizzes for those modules.

Study step 3: Quiz taking strategies

Multiple choice

This is how you answer a multiple choice question.	Why
1. Read the question first. Identify the key words in the question. Remember the key words.	The key words will help you know what the question is really asking. Sometimes key words are repeated in the answer that is correct.
2. Think about the question. Don't look at the list of answers yet. Try to answer the question using what you remember from the lesson.	Sometimes multiple choice answers are written in a confusing way. If you think you know what the right answer is, you will be less confused by the wording of the answers.
3. Read the list of multiple choice answers. Ignore any answers you know are wrong.	Because you have already thought about the right answer, you will quickly know if a multiple choice answer is wrong. Ignore it.
4. Ask yourself if each of the answers is true or false.	Sometimes test writers put in false answers to confuse you. Ignore those false answers.
5. Ignore any answers that might be true but are not related to the question.	Sometimes one of the answers is true, but it is not the answer to the question.
6. If one of the choices is "all of the above," you should read each answer again carefully.	If you know that two of the choices are correct, then the answer is probably "all of the above."

Read through the text taken from the CSTS-09 course, on the National Safety Code for the motor carrier industry. Then read through the multiple choice "Question and Answer Choices" below. Read carefully through the "Explanations" to understand why each answer is correct or incorrect. Use what you have learned about answering multiple choice questions.

National Safety Code (NSC) was established to encourage safe trucking, promote efficiency in the motor carrier industry, and to achieve consistent safety standards across the country. Safety-related NSC standards cover safety ratings, facility audits, driver and carrier profile systems, trip inspection reports, driver hours of service, commercial vehicle maintenance and inspections, and load security.

Question and answer choices		Explanations
The NSC is Canada's national standard for:		The key words are "national" (all across Canada) and "standard" (the safety level that everyone should use)
A	**transporting dangerous equipment**	X **Incorrect** This answer sounds correct because of the words "transporting" and "dangerous". These words are important in safety. But the text did not say anything about them.
B	**safety in the motor carrier industry**	✓ **Correct** This is the best answer because the other three choices are incorrect. If you eliminate the other 3 (A, C and D), you only have this choice left. It must be correct.
C	**checking the accident history of vehicles through trip inspection reports**	X **Incorrect** This sounds true, but it is only half true. The words "trip inspection records" are in the text, but the first part about "accident history" is not in the text.
D	**safety ratings and load security**	X **Incorrect** This is half true. Answer B is more true because "ratings" and "loads" are a sub-section of B, which is the better answer.

True or false

These tips will help you answer true or false questions:

1. Make sure every part of the sentence is true. Don't be tricked by half true answers.

   For example:

   True or false:
   Workers are responsible for safety on the job site, but employers and supervisors are not.

   The answer is false. It is half true – workers are responsible, but so are employers and supervisors.

2. Look for qualifiers in the statement, such as "only" or "every." The answer usually depends on whether the qualifier is true or false.

   For example:

   True or false:
   Only employers are responsible to make sure workers are competent to do a job.

   The answer is true. It is "only" the employer's responsibility to make sure workers are competent. If workers are not competent, the employer needs to give them the proper training.

3. If the sentence has a negative word in it, such as "not", take the negative out. Then read the sentence again. If it is true (without the negative), then it is false with the negative.

   For example:

   True or false:
   Workers are not responsible for safety on the job site.

   This answer is false. First take the negative out: Workers are responsible for safety on the job site. This sentence is now true, which means it is false with the negative word (not) in it.

Choosing the correct image

Some questions will ask you to choose a picture as your answer.
This is how you choose the correct picture for a question:

- Read the question carefully. Notice the key word(s).
- Compare the pictures. Notice the differences between the pictures.
- Think about what you have just learned in the listening and reading text.
- Check the key word(s) again in the question.
- Choose (click on) the picture that best answers the key word(s).
- The question may ask you to organize the pictures into a sequence. Carefully choose (click on) which picture comes first, second etc.

Interactive activities

Some questions are more interactive. They will ask you to choose a part(s) of a picture as your answer. This is how you choose the correct part(s) of a picture for a question:

- Read the question carefully. Notice the key word(s).
- Study the parts of the picture carefully.
- Think about what you have just learned in the listening and reading text.
- Check the key word(s) again in the question.
- Choose (click on) the parts of the picture that best answers the key word(s).

Contents

Module 1 Your Worksite and the Law

Legislation Awareness • Employer Responsibilities • Employee Responsibilities • Training and Competency • Reporting Requirements • Communication

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Lesson 1: Legislation Awareness

Vocabulary

Comply with
To do what a person or a law tells you to do.

Regulations
Regulations are rules or instructions that you should follow. Regulations are created by an authority. Some regulations are also laws.

Legislation
Laws created by the government.

Standards
How to do something in the best possible way. For example, the CSTS will teach you the standards for safety in the workplace.

Hazard
Anything that can hurt you or damage property or the environment. For example, being tired at work is a hazard. If you get tired and fall asleep while driving, you can hurt yourself or damage your vehicle.

Control
A way to keep a hazard from happening. For example, you should stop your vehicle and have a short sleep when you are tired. In the CSTS-09, you will also hear these similar words: standards, measures, methods, systems, legislation and regulations, procedures and processes, steps and guidelines, precautions, requirements.

Main Point

Government laws help keep everyone safe at work. Laws regulate (control) safety at work.

The OH&S (Occupational Health and Safety Act, Regulation and Code) is one of the most important laws. It protects you from potential risks to your health and safety at work. The OH&S tells you your responsibilities to keep the workplace safe. You must comply with (obey) these rules.

Lesson 2: Employer Responsibilities

Vocabulary

OH&S
Occupational Health and Safety Act, Regulation and Code

Competent Worker
A worker who has the correct knowledge, training and experience to do a task properly and safely. In the CSTS-09, you will also hear these similar words: professional, effective, trained, qualified.

Hazard
Anything that can hurt you or damage property or the environment. For example, if you get tired and fall asleep while driving, you can hurt yourself or damage your vehicle. In the CSTS-09, you will also hear these similar words: risk, danger, toxic, poisonous, harmful controlled substances and products.

Potential Hazard
Anything that might cause injury or damage.

Eliminate hazards
To stop anything that can cause injury or damage. In the CSTS-09, you will also hear these similar words: reduce hazards, control hazards, follow the manufacturer's guidelines, deal with hazards, and reduce exposure to hazards.

Control
A way to keep a hazard from happening.

Main Point

The OH&S makes your employer responsible for protecting you, the public and the environment.

Employers want to make sure you are always safe at work.

- They know what might be a hazard. Something that might hurt you or damage property or the environment is called a potential hazard.
- They use safety rules to control the hazard.
- They give you information about possible hazards.
- They create safety policies (rules) for your workplace.
- They give you safety training and protective equipment.
- They supervise your work to make sure you are being safe.
- They make sure they hire qualified, trained and experienced workers who know how to be safe.

Lesson 3: Employee Responsibilities

Vocabulary

To endanger
To do something that may put you or a coworker in danger.

Injury
An injury means that someone is hurt. For example, a cut finger or broken leg.

Rights and Responsibilities
You have rights, or laws that protect you as a worker. For example, you have the right to say "no" to unsafe work. You also have responsibilities, or things you must do. For example, you must attend all safety meetings at work.

Right to Refuse Unsafe Work
You have the right say no to unsafe work. You must explain why you cannot do it.

Main Point

The law says that you must help your employer keep the workplace safe.

You are responsible for your own safety. You must also make sure that your actions don't hurt other people.

Your responsibilities as an employee are:

1. To work safely.
2. To say no to unsafe work.
3. To tell supervisors about safety hazards.
4. To tell your employer if you have had previous injuries or health problems.

Lesson 4: Training and Competency

Vocabulary

Obligations
Things you must do. For example, your obligation is to let your coworkers know if you are using dangerous chemicals near them.

Good judgment
To know enough about a situation to make a good decision. For example, you use good judgment if you see a tool lying on the floor that someone could trip on and you put the tool away.

Qualified
To have the right training and experience to do a job well.

Assigned
To be given something to do. If you are assigned a task, you must do it.

Main Point

The law says that you must do everything you can to make sure no one gets hurt at work.

Your employer must make sure that you know how to do your job safely and correctly.

You must be able to see danger (hazards) before they happen. If you can't do your job safely and correctly, then you need to work closely with a coworker who is trained (qualified) in doing the job safely and correctly.

Lesson 5: Reporting Requirements

Vocabulary

Incident
Any event that causes, or could cause, injury to people or damage to property or the environment.

Incident Report
A report that your supervisor or employer writes to describe an incident that happened to you at work.

Accident
There are no accidents in the workplace. There are no reasons why accidents happen. When someone is hurt, it is not called an accident, it's called an incident because there is a reason for it. At work, injuries must be reported as incidents because there is a reason for them.

Loss-Type Incident
An incident when someone is injured or equipment is damaged.

No-Loss Type Incident
This is a situation that could have caused injury or damage, but did not. It is also called a "close call" or a "near miss." You must report no-loss incidents to your supervisor.

Worker's Compensation Board (WCB)
An organization, created by government, to provide insurance to employers and employees in Alberta. The WCB compensates (financially helps) you with lost income (wages), health care and other costs if you are injured at work.

Modified Work Program
If you get injured, your employer might be able to modify (change) your regular work schedule or tasks so that you can keep working.

Main Point

If you get hurt, you must get first aid or medical help. You must tell your supervisor what happened.

When you tell your supervisor or employer what happened, they will write what you say in a report. This is called an incident report. The report must also explain how to keep the incident from happening again.

Talking about incidents and writing incident reports can keep them from happening again.

Lesson 6: Communication

Vocabulary

Tailgate meeting
Meetings that you and your coworkers attend before you begin your work shift. Many tailgate meetings are about safety. Tailgate meetings are also called toolbox meetings or crew talks.

One-on-ones
When you have a conversation with just your supervisor or employer.

Expectations
When your supervisor tells you to do something, his "expectation" is that you will do it.

To be required to
If you are required to do something, it means that you must do it

Main Point

You must go to every safety meeting. If you miss a meeting, you won't have the right safety information to keep you and your coworkers safe.

Each new worksite has its own rules. Learn them when you start. Listen when you are at safety meetings. Ask questions when you don't understand.

Module 2 Physical Care and Conduct

Fitness for Work • Working Outdoors • Fatigue Management • Stretching and Micro-Breaks • Back Care • Personal Conduct • Drugs and Alcohol • Alcohol and Drug Guidelines/Work Rule

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Lesson 1: Fitness for Work

Vocabulary

To strain
To try to do something so hard that you hurt yourself.

Fluids
Liquids of any kind.

Stimulants
Things that give you a lot of energy for a short time. An example of stimulants could be coffee, cigarettes or sugar.

Main Point

Keeping in good physical condition (staying fit and healthy) will help you work better. You won't get hurt so easily. You will be able to work and get paid, instead of being at home or in hospital.

Take care of your body. Exercise every day if you can. Use these guidelines to stay fit:

1. Do resistance training (weight training)
2. Do cardiovascular exercise (exercise that makes your heart beat faster like running)
3. Stay flexible (do lots of body stretches)
4. Practice good nutrition (eat healthy)
5. Make good lifestyle choices (stay away from drugs, tobacco and too much alcohol)
6. Stay well hydrated at work (drink lots of water).

Lesson 2: Working Outdoors

Vocabulary

Hydrated
When you drink water to replace the water that you lose from your body through sweating or working hard, you are "properly hydrated."

Harmful rays
Rays of sunshine can be harmful to (hurt) your eyes or burn your skin if you are in the sun all day.

Heat cramps
When the muscles in your stomach, arms, or calves cramp (the muscles become tight) because you have worked hard in the sun for too long.

Heat exhaustion
When you are so tired from working outside in the sun that your muscles are weak or you feel that you will fall asleep.

Heat stroke
When your body temperature is too high and you feel faint or dizzy.

Main Point

Keep cool in the summer. Stay warm in the winter. In the winter, cold weather makes your muscles tighter, which can cause you to get hurt at work.

Use these guidelines:

1. In the summer, drink lots of water all day.
2. Protect your skin from the sun by using sunscreen.
3. Protect your eyes by wearing sunglasses.
4. Keep your eyes and skin protected from the sun, even in winter.
5. In the winter, dress in layers so that you won't get hurt by the cold or freezing winds.
6. Wear insulated gloves and boots.

In the summer, you need to keep cool to avoid:

- heat cramps in your muscles (when your muscles get very tight and they really hurt)
- dizziness (when you feel like everything is spinning and that you might fall down)
- nausea (when your stomach hurts and you feel like you might throw up)
- weakness from the heat (when you feel like you can't lift things or that you need to sit down before you faint)
- or a very high body temperature which causes heat stroke.

Lesson 3: Fatigue Management

Vocabulary

Alertness
To be awake and able to do something.
In moderation
To do something not too often or not too much.
Heavy eyes
You are so tired, your eyes want to close.
Burning eyes
Your eyes feel hot and keep filling with tears.
Eyes going out-of-focus
Your eyes keep changing between seeing and then not seeing clearly.
Blurred vision
Objects and people are not clear when you look at them.
Slow or slurred speech
You can't speak at your normal speed and your words aren't clear.
Drowsiness
You feel like sleeping.
Dizziness
Your head feels light and you feel like you might fall over.
Inability to pay attention or focus:
You can't listen to people when they talk to you, and you can't concentrate on tasks.
Constant yawning and head nodding
You yawn all the time. Your head falls forwards or backwards while you try to stay awake.
Reduced motivation
You don't feel like working.
Distractibility
You easily move away from your work to other people, noises or activities.
Irritability
You get angry more quickly than usual.
Mood Changes
You move quickly between feelings, for example, from happiness to sadness.
Memory Loss
You forget things you normally remember.
Loss of Balance
You can't stand up straight and feel like you might fall over.

Main Point

If you are very tired when you go to work, plan to keep yourself safe, or to manage your fatigue. Fatigue means that you feel very tired and your muscles may also ache.

Tired workers are less attentive (don't look around them to know what is happening). As a result, they are not very careful and the chances of injury are high.

You must be able to manage your own fatigue to avoid getting tired and falling asleep at work. It is essential for keeping you safe.

Use these guidelines to manage fatigue:

1. Get at least 7 hours sleep each night.
2. Don't exercise too close to your bedtime.
3. Don't drink alcohol or caffeine, or smoke before going to sleep.
4. Work in lots of light.
5. Make sure the job site is cool.
6. Talk to other people when you are tired.
7. Do short exercises to help you stay awake.

Lesson 4: Stretching and Micro-Breaks

Vocabulary

Strains
A muscle strain is when you use the muscle too much and it hurts. Sometimes it means that you can't use that muscle until the pain goes away.

Sprains
When you stretch a joint so much that it is damaged. A sprain often means that you can't move that joint anymore.

Repetitive Stress Injury (RSI)
Injuries that happen when you use the same muscles, too many time, in the same way.

Carpal Tunnel Syndrome (CTS)
This injury happens in the wrist. CTS happens to workers who use their hand or wrist to do the same task repeatedly. They feel numbness, tingling, weakness in their hand and fingers.

Micro-break
A 15 to 30 second rest, taken every 30 to 60 minutes. It allows tense muscles to relax. You can stretch your muscles and give your mind a rest from your task.

Main Point

Stretch your muscles (warm them up) before you start working. Take micro-breaks (short rests) during your shift.

If you starting work "cold" (without stretching or doing light work first), you increase the chances of strains and sprains to your body.

Use these guidelines for stretching and micro-breaks:

1. Stretch like athletes and runners do before a race.
2. Do some light work first. It will get your muscles ready (warm them up) for heavier work.
3. Take micro-breaks to avoid repetitive-stress injuries. Short rests will improve your mood (emotional feelings in your mind).

Lesson 5: Back Care

Vocabulary

Chronic
A problem or pain that never goes away.
Debilitating
When you hurt yourself so much that you lose your strength or your ability to do things.
Poor posture
Not standing or sitting correctly.
Degenerative disease
A disease that slowly gets worse and worse with time.

Main Point

The best way of dealing with back pain is to prevent it. Back injuries usually happen when you do uncommon activities like lifting a heavy object or moving in unusual or awkward ways.

Use these guidelines to care for your back:

1. If you stand for long periods of time, wear good supportive footwear (work boots).
2. You can also stand with one foot on a block of wood, and then change to the other foot. This will reduce stress on your back.
3. Don't lift heavy objects if you can use alternative means (another way).
4. If you do lift heavy objects, do it slowly and take regular breaks.
5. Always ask for help to move a heavy object - don't try to act strong in front of coworkers.
6. Before lifting, assess (check) the weight of the object by lifting one corner.
7. If you think you can move the object safely by yourself, use the following technique:
    - Keep your feet shoulder-width apart.
    - Bend at your knees, not your waist to reduce the stress on your back muscles.
    - Lift with your legs.
    - Keep your lower back straight and your stomach muscles tight while bending over.
    - Keep the weight you are lifting close to your body. Don't hold it far in front of you.
    - If you have to turn a corner, make the turn with your feet, not your body.
    - If there are obstacles in your path, move them before you start moving.
    - Wear boots that won't slip.

Lesson 6: Personal Conduct

Vocabulary

To offend
To say or do something that makes someone else angry.

Threatened
To say or do something that makes someone else feel unsafe physically or emotionally. When you threaten someone, it's called intimidating them.

Assault
To hit or hurt someone.

Bullying
When you say mean things or hit people to make them feel that they are in a lower position. Bullying is one form of harassment.

Fatalities
Deaths.

Harassment
Behavior that offends or humiliates (makes a person feel that they are in a lower position) another person.

Horseplay
Any actions, including "having fun", that can put anyone in danger, either emotionally or physically.

Main Point

Harassment creates a hostile work environment (unfriendly and unkind workplace). It affects the lives of people at work and at home. It affects the quality of job performance (how well you do your work). Harassment can be verbal (words), physical (behaviors) or sexual. Harassment violates (breaks) company policies. It is also against the law.

There is zero-tolerance for harassment (words or behaviors that hurt another worker) in the workplace. Zero tolerance means that your supervisor or employer will discipline anyone who harasses another person right away. They will not ignore what happened.

Lesson 7: Drugs and Alcohol

Vocabulary

Consumption
To eat or drink something. You consume drinks and food.

To inhibit
To keep you from being able to do something.

Stringent
To be strict about a rule.

Banned
When you cannot go somewhere anymore. When you're banned from a worksite, you must leave and you can't return until a supervisor tells you you can.

Dismissal
To be fired from your job.

Hangover
To feel tired or sick in the morning because you drank too much the night before.

Alert and clearheaded
To be very awake and be able to think clearly (clearheaded).

To take up the slack
To do extra work for someone else who can't do it.

To put others at risk
To do something that may cause other people to get hurt.

Over-the-counter medicines
Medicine you can get at a pharmacy without a doctor's prescription.

Prescriptive medicines
Medicine that you can get at a pharmacy only with a doctor's prescription.

Main Point

Being impaired (unable to do your job properly and safely because of drugs or alcohol) at work for any reason is never acceptable.

You must make responsible choices about how you use drugs or alcohol. You must report coworkers who are impaired (drunk or on drugs). If your coworker is putting his life, or the lives of others in danger because of drugs or alcohol, you must report it to your supervisor.

Your coworkers' safety is at risk if you are impaired. You can't make good decisions if you are drunk or using drugs. You do things more slowly. Your emotions and feelings change.

Being impaired at work is against company policy. It is also illegal. Your supervisor will tell you to leave work. You may lose your job.

Lesson 8: Alcohol and Drugs Guidelines / Work Rule

Vocabulary

Policy
Rules for how to act the right way at work.

Endorse
When people agree that something is a good idea. For example, when someone endorses a policy, it means that they agree with it and expect people to follow the policy.

To tamper with
To wreck something so that it doesn't work properly.

Side effects
A pill for a cold may make your nose stop running, but one of its side effects may also be that you are too sleepy to be able to drive a car.

Near miss
An incident that almost happens.

To have reasonable grounds
To notice enough from someone's behavior that you suspect they are impaired.

Main Point

The "Canadian Model for Providing a Safe Workplace" is a policy. It sets some basic rules to make sure that drugs and alcohol don't put anyone's safety at risk in the workplace.

You can use drugs from your doctor or from the pharmacy at work. However, you must tell your supervisor if the drugs could cause a safety problem, for example, if the drugs make you tired.

Your employer can make you take a drug test if:

- you have a safety incident,
- you have a near miss (an incident almost happens),
- or your employer thinks that you can't work safely because of alcohol or drugs.

The purpose of the test is not to violate your privacy (to find out what you do in your private life). Instead, the test will ensure you are in compliance with the alcohol and drug work rule (makes sure you are not breaking the alcohol and drug work rule).

Failure to comply with (failure to say "yes" to the test) the alcohol and drug rule could result in disciplinary action (actions that are meant to correct or punish you for your bad behavior). You may not be allowed to come to a worksite. You may even lose your job.

Module 3 Personal Protective Equipment (PPE)

PPE Defined • Basic PPE • Use and Care of PPE • Specialized PPE • Clothing

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Lesson 1: PPE Defined

Vocabulary

Face shield
A piece of equipment you put over your face to protect it.

Fire-retardant clothing
Fire retardant means that something probably won't catch fire, but there is no guarantee. Fireproof means that something is guaranteed not to catch fire.

Main Point

PPE helps keep you safe at the worksite. Think of it as your professional work uniform.

You don't have to wear all kinds of PPE at the same time. You will need different types of PPE for different worksites, depending on what kinds of hazards exist there. But you must wear your basic PPE at all times.

On each job site, you will face a variety of situations and potential hazards. There is less chance of getting hurt when you wear PPE. This is very important when your PPE is the only way to eliminate or control hazards.

Lesson 2: Basic PPE (Personal Protective Equipment)

Vocabulary

Force of impact
How strongly you hit something. Or how strongly one thing hits another.

Splinters
Very thin pieces of wood or metal. Another word for splinter is sliver.

Iron filings
A very small piece of metal (iron). A filing can be so small that it's very hard to see.

Welding flash
The sparks and lights that shoot in the air while someone is welding.

Main Point

Basic PPE gives protection to your head, feet, eyes, hearing and hands. PPE protects your body parts that could easily get injured. Use these guidelines for PPE:

1. Always wear an approved hardhat.
2. Always wear a high-top leather boot with a steel toe and a puncture resistant sole.
3. Use the correct safety goggles, dust goggles, chemical goggles or face shields.
4. Choose the correct ear protection depending on what work hazards there are at your worksite; choose disposable foam plugs (ones that you throw away after work), re-usable plugs (ear plugs you can reuse every day) or earmuffs.
5. Wear the proper hand protection for the job.

Lesson 3: Use and Care of PPE (Personal Protective Equipment)

Main Point

Take care of your PPE so it can take care of you. Follow the instructions from the manufacturer on how to care for and use your PPE. Store (keep) you PPE in a well-ventilated area (where there is lots of air movement).

Inspect (check) your PPE every day. Make sure it is not damaged (broken) or worn (used too many times). Replace it immediately.

Lesson 4: Specialized PPE (Personal Protective Equipment)

Vocabulary

Visibility
When you can see something clearly. Or when someone is able to see you clearly.

Fluorescent vests
A vest that has a bright colour that glows. Often they are bright yellow or orange.

Synthetic fibres
Manmade fibres (cloth) like polyesters and nylon.

Flame resistant or retardant
Clothing or equipment that will probably not catch fire.

Respirator protection
The word respirator is about breathing. Respirator protection is equipment you wear so that you can breathe when there is dust or chemicals in the air. A dust mask is one example of respirator protection.

Main Point

Sometimes basic PPE isn't enough to keep you safe. Sometimes you need specialized PPE, like respirators and other self-contained breathing apparatus, because of risks at work or special work conditions or processes.

Your employer will provide you with specialized PPE. Your employer will also train you in how to use the specialized PPE. But in the end, only you are responsible.

You must make sure you have adequate PPE (the right PPE and enough of it). You must wear extra or specialized PPE if you believe you could get hurt without it.

Lesson 5: Clothing

Vocabulary

Frostbite
If you have part of your skin exposed to very cold air, it may become frozen. This injury is called frostbite.

Hypothermia
When your whole body has been in very cold air or water for too long. You become so cold that you can't move very well.

Main Point

Proper clothing can help to protect you from injuries. Improper clothing will increase your chances of being hurt.

Each worksite has its own guidelines (minimum requirements) for the clothing that you must wear. Follow these guidelines at all times.

Use these guidelines to choose clothing for work:

1. Don't wear clothes that are torn, frayed or loose-fitting. The clothes can get caught in the moving parts of machines and the machine will pull you in. You might get injured.
2. Don't wear jewelry (rings, earrings, necklaces, bracelets or watches).
3. Tie up your hair if it is long.
4. Wear long pants and long sleeved shirts. Short sleeves are okay on some sites.
5. If you spill hazardous or flammable chemicals on your clothing, stop and clean or change your clothing immediately.

Module 4 Workplace Hazards

Hazard Assessment • Causes of Workplace Hazards • Inspections • Investigations • Invisible Hazards • Confined Spaces • Respiratory Hazards • Hazard Control

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Lesson 1: Hazard Assessment

Vocabulary

A near-loss
A small incident that could lead to a bigger incident if no one does anything about it.

Chemical agents
A chemical solid, liquid or gas that could harm your body or the environment.

In the line-of-fire
When you are in the way of a hazard that may hurt you.

Exposure
When you are near or have touched something that can harm you.

Main Point

A hazard is anything that risks the safety of workers. A hazard assessment is a method that you or your crew (work team) use to minimize (decrease) or eliminate (get rid of) potential hazards. A potential hazard is something that could hurt you or damage equipment.

Know the following four types of hazards:

1. Chemical hazards happen when chemicals are released into the atmosphere (get into the air) around workers. Chemical hazards include vapours, mists and gases, dust, and particles (small pieces of something).
2. Physical hazards can do physical harm to workers. For example, loud noises can damage your hearing.
3. Ergonomic hazards occur when you work with your body in an uncomfortable position. Ergonomic hazards also happen if you lift heavy objects, if tools are designed badly, or if you are in the way when an incident happens.
4. Biological hazards happen when you breathe in harmful things from the air and they make you sick. For example, you might get sick if you breathe in mold (a living thing) that grows on a damp wall. Other biological hazards are bacteria (sometimes called germs) and viruses (colds and the flu are caused by viruses).

Doing a hazard assessment with your coworkers will help minimize (decrease) or eliminate (get rid of) chemical, physical, ergonomic and biological hazards at your worksite.

Lesson 2: Causes of Workplace Hazards

Vocabulary

Toxic
Something that is toxic is poison.

Confined spaces
A space that is hard to get into and out of safely. You may risk being stuck in the space.

Excavations
Large holes in the ground at construction sites.

Airborne hazards
Things in the air around you that might hurt you, like dust, particles, or chemicals.

A Job Hazard Analysis (JHA)
A four step Field Level Risk Assessment:

1. look around and find hazards;
2. assess hazards (decide if they will hurt you and your coworkers or not);
3. control hazards (get rid of the hazard or fix the problem);
4. resume work.

Main Point

There is a good reason for each safety rule. Experience proved that these safety rules are necessary to keep people safe.

Four things cause workplace hazards:

1. People who do not behave safely.
2. Equipment and tools which break or are not used properly.
3. Materials which are dangerous, like toxic chemicals.
4. Worksites which are dangerous.

Use these guidelines to prevent hazards:

1. Don't ignore safety rules because you get too used to doing familiar work.
2. Be aware of language barriers and communication difficulties that could result in misunderstandings and potential incidents.
3. Keep equipment properly maintained and serviced. Make sure equipment works perfectly before you use it.
4. Keep your tools clean and fix or replace them if they get broken.
5. Use tools properly, according to the manufacturer's instructions.
6. If you use hazardous materials, follow the instructions provided by the MSDS (Material Safety Data Sheets).
7. At the worksite, be aware of common hazards such as confined spaces, excavations, airborne hazards, falling equipment or workers, ladders, scaffolds, slips, trips, falls, back injuries and electrical hazards.

Lesson 3: Inspections

Vocabulary

Protocol
A set of rules or a plan that you must follow.

Compliance
To follow the rules.

To monitor
To watch something or someone carefully over a long time.

To pose a risk
Something that may cause an incident or someone to be hurt.

Inspections
A walk around a worksite to observe (look for) hazards and to determine the levels of compliance (how well everyone is following the safe work practices, procedures and company rules).

Main Point

Inspections keep workplaces safe and healthy. You are responsible to participate in inspections.

On a worksite, hazards and conditions like weather change all the time. A worksite that was safe yesterday may have new hazards today.

At work, you must always check for anything that is a risk to people or property. This is called an ongoing informal check.

You supervisor will walk around your job site every day checking for risks, too. This is called an informal inspection. Your supervisor will also plan formal inspections. You and your coworkers will be told when formal inspections are planned so that you can plan for them.

Government inspectors may visit a site to see that legislation (legal rules) is being followed.

Lesson 4: Investigations

Main Point

The main purpose of an investigation is not to blame anyone, but to prevent the incident from happening again.
Investigations identify the causes of safety incidents. Then, after the investigation, people can take corrective action (make changes) to prevent the incident from happening again (in the future).

Investigations should be conducted (done) by the supervisor in charge of the area, along with the workers involved in the incident.

Lesson 5: Invisible Hazards

Vocabulary

Airborne contaminants
Poisonous gases or fumes in the air.

Electrical
Things that have electricity.

Mechanical
Machines or tools are mechanical.

Hydraulic
Things that move or are operated using water pressure.

Pneumatic
Things that move or are operated using air pressure.

Thermal
Having to do with heat.

Blind spots
Areas that are hard to see. Usually “blind spots” are when you can’t see to the side and behind you in a vehicle.

Invisible hazards
These are hazards that aren’t obvious at first glance, or the first time you look for them. They include electrical, fatigue, weather, driving, repetitive motion, line of fire, and stored energy release.

Main Point

Be aware of invisible hazards. These are hazards which you can't always see. Invisible hazards aren't obvious at first glance. Some invisible hazards are:

- electricity,
- fatigue (feeling very sleepy and having sore muscles),
- repetitive motion (using the same muscles to do the same thing all the time),
- line of fire (being too close to something that could hurt you),
- and stored energy release (machines or equipment that have energy which could be released unexpectedly and hurt you).

Use these guidelines to control invisible hazards:

1. Make sure the air in confined spaces is safe before you go into them. They may have a hazardous atmosphere (chemicals, poisons, or other unsafe things in the air) or they may not be properly ventilated (have air moving through the space).
2. Be careful when working near power lines.
3. Be aware of your own levels of fatigue. Let your supervisor know if you are feeling tired.
4. Be properly prepared for hot and cold weather.
5. Before driving, do a quick walk around the vehicle to check for any signs of damage or danger.
6. Use proper lockout procedures when you service or clean machines or equipment to avoid injury from a discharge (release) of energy. Sometimes machines have energy which can hurt you. They may have electrical currents, hydraulics (parts that work with pressure from liquids), pneumatics (parts that work with air pressure), harmful chemicals or thermal hazards (parts that can burn you).
7. Even after equipment has been shut off, harmful energy can still be stored in the form of springs that can uncoil and hurt you, steam that can burn you or pressurized air or liquid which can hurt you.

Lesson 6: Confined Spaces

Vocabulary

Confined Space
Any area with a restricted entry or exit point. A space not really meant for people to be in. It may also be hard to get into and out of safely, or you may risk being stuck in the space.

Buddy-system
Where two people help each other to do something difficult or dangerous.

A permit
A written license that says you can do something.

Expire
To be over or done. For example, permits expire and must be renewed.

Self-contained breathing apparatus
A tank of air that you wear to help you breathe in places where the air is contaminated (has harmful chemicals, gases or fumes in it).

A lifeline
A series of ropes and harnesses that will keep you from falling on a construction site.

Main Point

If you haven't been trained to enter confined spaces, stay out of them. Even if someone gets hurt, don't go into a confined space.

You must wait for a qualified person to test the air quality before you go into a confined space.

You must be trained to enter a confined space. Use the confined space entry permit (this is a sign by the opening into the confined space) to understand the guidelines for entering that space.

Lesson 7: Respiratory Hazards

Vocabulary

Airborne contaminants and irritants
Airborne contaminants are poisonous gases or fumes in the air. Airborne irritants are small particles (pieces) of things that are in the air. One airborne irritant can be asbestos particles.

Respirators
Equipment that helps you breathe.

Sandblasting
To spray sand using strong air pressure. Sandblasting is often used to clean a surface or make it smooth.

An oxygen-deficit atmosphere
When the air around you doesn't have enough oxygen in it. You may not be able to breathe very well in an oxygen-deficit atmosphere.

Main Point

Respirators keep you safe from airborne contaminants and irritants. Respirators will help you breathe in a worksite that has airborne irritants or contaminants.

Make sure you have the correct, approved type of respirator for the specific airborne irritants or contaminants in your workplace.

Airborne irritants are things in the air which **might** hurt you like dust, fibres or non-toxic gases.

Airborne contaminants are things in the air which **will** hurt you like chemicals or toxic gases.

Use the following respiratory equipment:

1. Cartridge respirators trap particles of dust, mist, fumes, gases and vapours. They clean the air you are breathing.
2. Powered, air-purifying respirators are used for work like sandblasting or welding. They blow clean air to keep dust and fumes away from your face.
3. Self-contained breathing apparatus (SCBA) provide a regulated (constant and measured) supply of clean air to the worker.

Lesson 8: Hazard Control

Vocabulary

Barricades
Something that is put up to keep others from getting into an area.

Flagging
Flags in different colours that let people know they can't go into an area.

Access controls
Barricades, flags and signs that tell people they can't go into an area.

Suppressors
Things that you put on a machine to block noise.

Welding arcs
The curved flash of light that happens when someone is welding.

Automated processes
When a machine or series of machines does a job.

Lockout
To turn off a machine and disconnect it from its power source.

Tagout
To put a tag (label) on a machine to show that it's not working and shouldn't be used. The tag also lets others know that the machine needs to be fixed.

Main Point

Use the right controls (actions) to eliminate (get rid of) or control hazards. There are many hazard controls to choose from. Choose the right control for the hazard.

Use these guidelines to control hazards:

1. Put up barricades, signs or flags to make sure people stay out of unsafe areas.
2. Use more lighting when visibility is bad (too dark to see what you're doing).
3. Use automated processes or mechanical devices (machines or tools created to do a specific job) to limit a worker's exposure to a hazard..
4. Put a screen around your area when you are welding.
5. Use lockout and tagout procedures when working on electrical, mechanical or steam equipment. When you lockout energy (turn off the machine and disconnect it from its power source), you create a zero-energy (no energy) state.
6. Use noise control barriers or suppressors (things that you put on a machine to block noise) on equipment that generates excessive (too much) noise levels.
7. Use monitoring equipment and warning devices, like smoke or gas detectors, to identify potential hazards that are forming.
8. Properly designed work areas can also control hazards.
9. Scheduled breaks and stretching can reduce hazards like fatigue or working in awkward positions.

Module 5 Field Level Hazard Assessment (FLHA)

What is a FLHA • STOP and Think • Look and Find Hazards • Assess Hazards • Controlling Hazards • Resume Work

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Lesson 1: What is a FLHA (Field Level Hazard Assessment)

Vocabulary

Field Level Hazard Assessment
FLHA is a method that a worker or crew uses to minimize (reduce) or eliminate (get rid of) risks to people, property, materials or the environment.

Main Point

Do an FLHA in your own head before and as you work, or do it formally with your supervisor and coworkers.

When to do a FLHA:

- At the beginning of a new job or shift
- When new workers come on site
- When work plans change
- When worksite conditions change (like a change in the weather)
- When you change work tasks or equipment
- Whenever a change in another person's activity could be a hazard to you

You should do a FLHA in the following way:

1. Stop and think.
2. Look around to identify current and potential hazards.
3. Assess the hazards (decide if they are a threat or not).
4. Control the hazards (reduce the threat or get rid of the hazard).

Lesson 2: STOP and Think

Vocabulary

Overlook
When you don't notice something because you are too familiar with the job you are doing.

Main Point

When a job is easy for you to do, sometimes you forget to stop and think before you do your job. However, you must first think about what is happening around you and what could go wrong. Stop and solve the problem(s) before you do the job.

Before you start a job, take a few minutes and ask yourself the following safety questions:

1. Do I clearly understand the steps for doing this job?
2. What exact job will I do and what are the specific steps?
3. Am I physically and mentally ready to do each job step?
4. Do I know how to do each step safely?
5. Am I tired, frustrated, or rushing the job?

Lesson 3: Look and Find Hazards

Vocabulary

Trenches
A narrow excavation (hole) below the surface of the ground. Its depth is usually greater than its width. A trench can be a confined space.

Muscle strains
When you use your muscle so much that it hurts.

Microbes
Germs.

Main Point

You can prevent problems before they happen by knowing what could go wrong.

Name and describe hazards that are part of the kind of work you do, and hazards that exist because of the way the job site or work is organized.

Ask yourself the following questions before each job to find hazards:

1. What could go wrong in each step?
2. Is there any danger or potential hazard to people, equipment, or the environment?
3. What could change and then create a hazard?
4. Could other crews, workers, or conditions be hazards to me?

Lesson 4: Assess Hazards

Main Point

Look at each potential hazard (a hazard that might happen) and decide how dangerous it could be, and how likely it could happen.
Once you have figured out (understand) what could go wrong, you can take measures (do things) to control the potential hazards.

Ask yourself the following questions to assess hazards (decide if they are a threat or not):

1. What could go wrong because of the hazard? Could it cause injury, death, slow down work, damage equipment or contaminate the environment?
2. How likely is it to happen? (1) almost certain, (2) likely, (3) not very likely, (4) almost impossible.

Lesson 5: Controlling Hazards

Main Point

You need to take action to control hazards if they could be serious or could happen.
Ask yourself the following questions to control hazards:

1. Am I following the correct procedures?
2. Am I following the permits, written practices or work scheduling to reduce the number of workers?
3. What can I do to control the hazard?
4. If I control the hazards, will it affect any other part of the job being done?
5. Do I need to tell anyone else about these controls?
6. Do we need emergency plans?
7. Is there someone I could call for help?

Lesson 6: Resume Work

Main Point

Continue working after you have finished your 4-step FLHA (field level hazard assessment).
See Lesson 1 of this Module to remind you of the 4-step FLHA.

Module 6 WHMIS (Workplace Hazardous Materials Information System)

Purpose of WHMIS • WHMIS Responsibilities • Labels • MSDS (Material Safety Data Sheet) • Hazard Symbols • Protecting Yourself

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Lesson 1: Purpose of WHMIS

Vocabulary

Symbols and labels
A symbol is a picture showing an idea (hazard symbols), and a label is a tag or piece of paper with information on it.

Hazardous substances
Solids, liquids or gases that harm people.

Controlled Products (also called Controlled Substances):
Any material, product or substance that might hurt you if you don't use it correctly. These products are controlled through WHMIS regulations.

Main Point

WHMIS is the Workplace Hazardous Materials Information System. It gives information to protect you (keep you safe) from hazardous (dangerous) substances on the job.

You must follow WHMIS for controlled products. It is the law in Canada. WHMIS controls and mitigates (reduces) the risks from dangerous chemicals in the workplace.

WHMIS gives you information about the products you are working with in three ways:

- labels,
- hazard symbols,
- Material Safety Data Sheets (MSDS).

Lesson 2: WHMIS Responsibilities

Vocabulary

Precautions
Something you do ahead of time to stop something dangerous from happening.

Main Point

Workers, employers and suppliers are responsible for controlled substances.

Workers must:

1. Read all WHMIS labels
2. Understand the hazard symbols.
3. Follow the MSDS recommendations.
4. Follow safe work practices for handling controlled substances.
5. Tell supervisors if someone is not using or storing controlled products safely.
6. Make sure that others who are near you know that you are using a controlled substance. Your coworkers may need to take proper precautions too.

Suppliers must:

1. Attach labels using words and hazard symbols.
2. Supply material safety data sheets (MSDS). The MSDS must give detailed information on how to handle the product safely.

Employers must:

1. Know all controlled products used in their workplaces and keep a list of them.
2. Make sure that workplace labels and MSDS are available to workers at all times.
3. Give training to their workers about WHMIS, controlled substances, safe work practices and the proper use of personal protective equipment (PPE).

Lesson 3: Labels

Vocabulary

Containers
Something that you can use to hold or transport material in.

Shipped
Moved or transported from one place to another.

Portable
Something you can move or carry easily.

First aid measures
Activities to do when someone has been hurt to help them get better.

Main Point

Every container that holds a controlled product must have a label.

You will use three kinds of labels in the workplace:

1. Suppliers put **Supplier labels** on containers before the containers are shipped (sent) to your workplace. You can identify a supplier label by the black, broken-line border around the information.
2. **Workplace labels** are put on all containers that don't have a supplier label.
3. **Product identifier labels** have only one piece of information - the name of the controlled product. You only use product identifier labels for one shift to remind yourself what is inside the container. If the controlled product will be used by many people, or for more than one shift, you must use a workplace label.

Lesson 4: MSDS (Material Safety Data Sheet)

Vocabulary

Dispose of
Throw away

Main Point

Material Safety Data Sheets give information on the safe use, storage and handling of every hazardous substance in the workplace.

The MSDS explain the following:

1. Physical and chemical properties of the hazardous product (what the product is made of)
2. Physical and health hazards
3. Safety precautions (rules to keep you safe while using the product)
4. Spill and clean up procedures
5. Required hazard control measures (rules you must follow while using the product)
6. PPE (Personal Protective Equipment) you must wear while working with the product
7. Procedures for emergency first aid

Lesson 5: Hazard Symbols

Vocabulary

Flammable, Inflammable, Combustible
All three of these words mean the same thing: to be easily set on fire.

Symptoms
A symptom is a sign that something is wrong. For example, a headache might be a symptom of a more serious condition.

Reactions
A response to something. Difficulty breathing might be a reaction to chemicals in the air.

Main Point

You can read symbols more quickly than words. Hazard symbols help to save time on the job and in an emergency. On some worksites, like refineries, WHMIS hazard symbols are not used. They use colours or codes to identify hazardous pipes and vessels (containers). Your employer must train you to understand these colours and codes. You also need to know the following 8 hazard symbols:

Symbols and Meaning

Class A Compressed Gas	**Class B** Combustible Materials	**Class C** Oxidizing Materials	**Class D - 1** Poisonous or Toxic Materials	**Class D - 2** Other Toxic Effects	**Class D-3** Biohazardous Infectious Materials	**Class E** Corrosive Materials	**Class F** Dangerously Reactive Materials
							
The gas is stored at high pressure. If it is heated or damaged, it can explode. The gas is also flammable (can catch fire).	Flammable materials could burn under normal conditions. But combustible materials will burn if they get hot.	These materials don't burn, but they increase the amount of oxygen in the air around them. This means that other materials nearby will burn more easily.	If these materials come in contact with (touch or spill on) your body, they quickly cause very bad illnesses or even death.	These materials may not cause illness immediately. Instead, they cause health problems later. It may take days, months or years for you to notice that they have made you sick.	These materials have live bacteria or viruses in them. They can make humans very sick.	These materials can cause really bad chemical burns to your skin and eyes. If you breathe them in, they can burn your lungs. They can also dissolve (melt and put a hole through) some metals, like steel.	These materials have violent chemical reactions when they are heated, mixed with water or pressurized. This can cause explosions. Poisonous gases can go into the air.

Images taken from the MSDS Brochure on the ACSA website
http://www.acsa-safety.org/assets/toolbox/45_msdsbrochure.pdf

Lesson 6: Protecting Yourself

Vocabulary

Inhaling
Breathing in

Ingesting
Swallowing or eating

Airborne irritants or contaminants
Things in the air that hurt you if you breathe them or if they go into your body through your mouth.

Shortcuts
When you try to do something quickly and you don't follow all the rules or procedures closely. You miss some steps.

Main Point

Most health hazards happen by inhaling (breathing in) or ingesting (eating and swallowing) chemicals.

Health hazards can also happen by having skin contact with (touching) these hazardous materials.

Respiratory hazards can come from airborne irritants or contaminants (things in the air).

Another respiratory hazard is oxygen deficiency. This means there is not enough oxygen in the air, and you can lose consciousness (faint) and stop breathing.

To protect yourself, use these steps:

1. Get trained.
2. Know the hazards of each material. Know how to handle each material safely.
3. Use the proper hazard control measures and safe work procedures from the MSDS (Material Safety Data Sheets). Know where the MSDS are in the workplace. Know how to use the MSDS properly.
4. Wear the right PPE (Personal Protective Equipment).
5. Make sure containers have the right label on them.
6. Know where to get more information.
7. Don't take shortcuts.
8. Ask questions when you aren't sure what to do.

Module 7 Worksite Conditions

Housekeeping / Cleaning Up • Slips, Trips and Falls • Signs and Entryways • Compressed Gases

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Lesson 1: Housekeeping / Cleaning Up

Vocabulary

Debris
Garbage

To navigate
To plan a route or a path.

Clutter
Mess

In a haphazard way
In an unorganized way.

Main Point

When you keep the worksite clean and organized (housekeeping), you are controlling the hazards.

Housekeeping is everyone's responsibility. Clean as you go. Clean up your own mess.

If you see a potential hazard caused by someone else, don't just leave it there. If the danger is immediate, do a quick clean up. Then talk to the worker who is responsible or to a supervisor.

Use these housekeeping steps:

1. Make sure there are no objects in the way where people have to walk, such as aisles and doorways
2. Pile materials in an organized way. Don't let materials pile up in haphazard (unorganized) ways. They can fall on people.
3. Don't leave tools lying around the site when you are not using them.
4. Avoid tripping hazards like extension cords and welding cables.
5. Clean up spills, leaks, and hazardous materials immediately.
6. Pay attention to housekeeping throughout your entire shift. Housekeeping is a part of your Field Level Hazard Assessment (FLHA).

Lesson 2: Slips, Trips and Falls

Main Point

Low-level falls (where you don't fall from very high) can be dangerous. Low-level falls include slips, trips and falls down stairways. They also include falls when workers get off equipment. Low-level falls cause many injuries to workers.

Use these steps to prevent slips, trips and falls:

1. Clean up debris, tools and objects lying around at your worksite.
2. Think carefully about what might be a hazard before doing something that might be dangerous. This is called a mental hazard assessment.
3. Be careful when you use temporary walkways like pallet sidewalks or plank trails (walkways made out of wooden boards).
4. Avoid jumping on or off equipment. Use three points of contact (two hands and one foot or one hand and two feet) all the time. Before you climb on the equipment, make sure your hands are already on the machine before your feet leave the ground. When you climb down, make sure your feet are on the ground before you let go with your hands.
5. Watch out for mud that can make things slippery.
6. Make sure there is enough light where you are working. If you are in a dark space, task lighting (a light that shines right on the area where you're working) may be necessary.
7. Keep walkways and stairwells clean.
8. Put up rails to keep stairwells strong.
9. Cover all holes with a strong material (also called a covering).
10. Put a guardrail or a covering over wall openings (holes in the wall).
11. Report loose coverings or guardrails to your supervisor.

Lesson 3: Signs and Entryways

Vocabulary

Ramps
Something built to join space between two different levels.

Traction
Grip

An egress
An exit from someplace.

To grow accustomed
To get used to doing something so that you don't really notice what you're doing.

Main Point

Workers must always have a safe way to enter and exit a worksite. They also need to know what the site hazards are.

Here are some ways to make sure you can exit and enter a worksite safely:

1. Make sure ladders are secured, or tied down.
2. Have strong wide ramps with good traction (good grip). Good traction means that workers won't slip on the ramp.
3. Keep entry areas free from obstructions (objects in the way) and clear of debris (garbage or small pieces of things).
4. Make sure there is more than one way to enter or exit a worksite. There should be an alternate access, or egress (exit), in case of emergencies.
5. Put up barricades and warning signs to warn workers or the public of a hazard. Look for wooden A-frames, warning tape, a snow fence or safety cones.
6. Keep signs up-to-date and tied down so that they don't blow over in the wind.

Lesson 4: Compressed Gases

Vocabulary

Cylinder
Another name for a tube, a drum or a barrel.

Tank
A large storage container usually for liquid or gas.

Valves
Something used to control how fast or slow a liquid flows.

Gauges
Instruments used to measure and show the amount or contents of something.

Radiator
A heater that water flows through.

Compressed gas
Gas that is under high pressure inside a container of some kind.

Electrical arcs
Electricity that shoots in a curve from a power source to some other object.

Main Point

Compressed gas cylinders are used on the job every day. It is easy to forget that these cylinders can act as bombs if they are used the wrong way.

Follow these guidelines when you use compressed gas cylinders:

1. Read the label before you hook up a compressed gas cylinder. Most tanks (cylinders) are colour-coded, but don't trust that. Instead, always read the label first.
2. Check for leaks in the cylinder each time you use it.
3. Never stand in front of the valve or gauges when you are opening a cylinder.
4. Never use a cylinder without a regulator to control the flow of compressed gas.
5. Store compressed gas cylinders away from all heat sources.
6. Store oxygen cylinders at least 6 large steps away (6 strides apart) from fuel cylinders, oil and grease.
7. Always transport (move) and store cylinders in an upright position, with the cap on. Make sure the cylinder is secured (tied down with the cap on) so that it can't move.
8. Protect cylinders from damage. If you find a damaged cylinder, do not try to fix it. Instead, tag it out (put a tag on it). Then trained and qualified people must fix it.

Module 8 Environmental Factors

Dealing with Releases • Laws and Regulations • Classification, Storage and Disposal • Safeguards

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Lesson 1: Dealing with Releases

Vocabulary

Environmental spill
When harmful substances spill onto the ground or get into the water or sewer system.

Releases
When chemicals are spilled on the ground or get into the water or sewer system.

Spill kit
A container with everything you need to clean up dispose of (throw away) chemicals.

Main Point

Part of your responsibility is to reduce your impact on the environment (try not to harm the environment). Laws and regulations describe how to dispose of (throw away) substances and how to handle environmental spills.

Some materials and chemicals must not go in the garbage or down the drain.

All chemical spills are serious. You should act immediately to clean up the chemicals. Some chemical substances can harm the environment, even if the spill is just a little bit.

Use these guidelines for dealing with releases:

1. You must tell your supervisor about a spill immediately. It doesn't matter how the spill happened or who did it.
2. Read the MSDS (material safety data sheets) to know how to dispose of (throw away) a substance correctly.
3. The MSDS will tell you what PPE (Personal Protective Equipment) to use and what cleanup procedures are needed.
4. The MSDS will tell you how to dispose of the substance, but not where to throw it away. You will need to ask your supervisor about where to throw away the hazardous substance.
5. You may have a spill kit at your worksite. Make sure you know where your employer keeps the spill kit. You should know how to use it.
6. Ask your supervisor if you have any questions about how to clean up a spill. If you are not sure what to do, leave the cleanup for workers that are trained and qualified to do it properly.

Lesson 2: Laws and Regulations

Vocabulary

Evacuate
Move someone from a dangerous place to a safe place.

Pesticides
Something used to kill insects.

Solvents
A substance that can dissolve another substance.

Puncture
A small hole in something that lets air escape, like a tire.

Manifests
Documents that describe what you are transporting in your vehicle.

Main Point

Transporting (moving) hazardous materials by vehicle (like a truck) is a big responsibility. A spill or accident could endanger (harm) people and the environment.

Laws govern (control) the transport (moving) of hazardous materials. You must be trained in Transportation of Dangerous Goods (TDG) and have a certificate before you can transport large amounts of hazardous materials.

However, at times, you may need to transport small amounts of hazardous materials for short distances. In this case, you need to be aware of these rules:

1. Some cities only allow workers to transport hazardous materials along specific routes (roads).
2. Sometimes the vehicle will need an escort (a person who leads you) from the fire department or a safety official through the city. Make sure you know the laws of the place you are driving in.
3. Even if the amount of hazardous materials is very small (like diesel fuel in the back of a pickup truck), you may need special training. You may need to carry special documentation (paperwork or forms). Find out what the laws are and obey them.
4. Make sure any substances you transport are properly secured (tied down). Also make sure anything else in the truck, like work tools, are tied down or put in closed boxes or containers.

Lesson 3: Classification Storage and Disposal

Vocabulary

To seep into
When a liquid slowly soaks into the ground or a water supply.

Classify
To be able to identify, name and describe something.

Main Point

You must properly classify, store and dispose of (throw away) hazardous waste (garbage) at worksites. Hazardous waste handling is a specialized job. You need special training to do it. As a worker, you shouldn't have to handle most hazardous waste.

However, if you do need to handle (to touch or use) some hazardous materials, make sure you know how to handle and dispose of it properly. For example, take electronics like televisions to an eco-center.

If your company handles hazardous waste, it will have a Hazardous Waste Management Program. This program will describe how to correctly classify, store, and dispose of hazardous waste. This program will also describe the training and certificates workers need in order to handle hazardous waste.

Lesson 4: Safeguards

Main Point

You have a responsibility to protect yourself, your coworkers, the public and the environment from hazardous materials. Follow these safeguards (rules that prevent accidents):

1. Protect yourself and your coworkers from exposure to (touching or breathing in) harmful materials. Make sure your coworkers know when you are using hazardous materials nearby, so that they can protect themselves as well.
2. Use the information in the MSDS (material safety data sheet) to dispose of hazardous waste safely without harming the environment.
3. Use the proper PPE (personal protective equipment) for the job.
4. Protect the safety of the public by following the laws and being careful when you handle hazardous materials.
5. If a spill happens, report the spill immediately to your supervisor.
6. Know and follow the laws that regulate (laws that describe) the transportation and storage of hazardous materials.

Module 9 Fall Protection

Introduction to Fall Protection • Methods of Fall Protection • System Selection • Arrest Forces, Anchorage and Connectors • Full Body Harness and Equipment Inspection • Conclusion

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Lesson 1: Introduction to Fall Protection

Vocabulary

Jurisdiction
Having the power to apply laws.

Main Point

Fall protection is a safety system. Workers use it to eliminate falls (make sure they don't fall), or to control a fall in progress safely (keep them safe if they do fall). It also limits how badly they get hurt.

Governments and safety associations (regulatory bodies) decide at what height (threshold) workers must start using safety equipment to stop or control a fall.

Fall protection describes the correct fall hazard control method (method for preventing a fall) is depending on what height you are at. There is legislation (laws) which says what equipment and safety systems workers must use above different threshold heights.

Lesson 2: Methods of Fall Protection

Vocabulary

Reducing exposure to falls
To make sure you follow all of the fall arrest safety rules

Assemble and hoist
To put together and then to lift using a machine or pulleys

To meet or exceed parameters:
To follow the rules closely or to be even more careful than the rules describes.

Personal Travel Restraints:
Equipment a worker wears to keep him from falling.

Fall Arrest Systems
Equipment meant to stop a worker who is already falling.

Main Point

The best way to eliminate falls (keep all falls from happening) is by keeping workers on the ground.

In construction, there are 4 methods of fall protection:

1. Hazard elimination (getting rid of the hazard) is the safest choice. If possible, change the way work is done to prevent at-height work (working above the ground). For example, reduce the time you have to work above the ground.
2. Use guardrails to keep workers safe. Guardrails are a structure or barrier that will keep people from getting close to an edge where they might fall.
3. Personal Travel Restraints that will stop a worker from reaching a fall hazard (a place where he might fall). Fall Arrest Systems will stop a fall that is happening.
4. Administrative Control Measures are safe job procedures that reduce the risk of falling. These measures describe specific behaviors and steps to reduce the risk of falling. These measures are not the best way to prevent falling. The best way to prevent falling is to follow methods 1 through 3.

Lesson 3: System Selection

Vocabulary

On a random basis
Not consistent, or the same every time.

Personal Travel Restraints
Equipment a worker wears to keep him from falling.

Fall Arrest Systems
Equipment meant to stop a worker who is already falling.

Main Point

The first control for fall protection is to eliminate (get rid of) the hazard, if you can.

Think about all the factors before you choose a fall protection system and then choose the safest solution.

Use these steps to choose a fall protection system:

1. First, try to eliminate the fall hazard.
2. If you can't eliminate the fall hazard, wear personal travel restraints.
3. If these two things won't work, then use a fall arrest system.

Lesson 4: Arrest Forces, Anchorage and Connectors

Main Point

If you fall, the force of energy used to stop your fall (arresting forces) and your own body weight could pull your connecting device (like snap hooks or carabiners) out of the anchor point (the place where the lifeline is connected).

The arrest force of a fall (the energy used to stop a fall) depends on:

1. The worker's weight. A heavier worker will cause greater arresting force. There will be more stress on your connecting devices and the anchor point.
2. The distance of free fall. The farther you fall, the faster you fall. This means that your stop will be more severe when your equipment stops you. It may hurt you.
3. A longer deceleration distance (a slower fall) will reduce the power of the arresting forces. This means that when you stop, it might not be as severe.

The arrest forces (the force of energy used to stop a fall) must not hurt your body. To do this, you must try to keep the fall distance short by using connecting equipment (like snap hooks or carabiners) which absorbs the energy (force).

You must obey the manufacturer's rules for how to use fall protection equipment. However, the equipment can be secured, or set up, by you or another person. It will depend on your workplace's fall protection plan.

Lesson 5: Full Body Harness and Equipment Inspection

Vocabulary

Corrosion
Rust is an example of what happens when metal corrodes.

Burrs
Rough or ragged edges on the surface of metal.

Deformation
A change in the shape of something.

Deficiencies
Something is incomplete or not adequate.

Abrasions
When something has been rubbed so often that it looks frayed or torn.

Tell-tale signs
It is easy to see something is not right. That is a "tell-tale sign" that something is wrong.

Main Point

A full body harness supports your body if you fall. You must inspect your fall protection equipment, including the full body harness, each time before you use it.

Check the hardware and software for any deficiencies (broken, cracked, ripped or nearly broken parts).

Check each piece of hardware (any part made of metal) to see if it looks different than when it was new. Make sure all the moving parts (components) function (work) properly.

Check each piece of software. The software is any synthetic part (not made of metal) that is manmade or artificial. Look for any tell-tale (easy to see) signs of damage.

Lesson 6: Conclusion

Main Point

Fall protection can take a long time to learn. Thinking about how to prevent falls every day will help prevent you from falling.

Module 10 Emergency Response

Emergency Preparedness • First Aid • Fire Safety • Fire Extinguishers • Fighting Fire

Lesson 1: Emergency Preparedness

Vocabulary

Designate
Choose someone or something for a job.

Muster points
meeting places

Main Point

Any site - industrial, commercial, residential, and even your own home - should have an emergency action plan before anyone starts to work.

When an emergency happens, there is no time to call a meeting or designate (assign or give) responsibilities. Every worksite needs an emergency action plan, even though you do everything possible to prevent emergencies.

These are worksite guidelines to prepare for emergencies (called emergency preparedness):

1. Worksites need emergency evacuation procedures so that workers can get out of a building or site quickly.
2. Sites must have meeting points. The meeting points, or muster points, must be clearly marked so that workers and emergency vehicles know where to go. Sometimes a landmark like a gas station is chosen as the meeting (muster) point.
3. Workers must know where to go on site to make an emergency call. This might be by cell phone, by “Mike” style phone (a special, extra-strong cell phone often used on construction sites), or by using the designated emergency telephone. Everyone should know who to call for an ambulance or the fire department.
4. Workers must know where the fire extinguishers are on a site. Fire extinguishers need to be checked and recharged on a regular basis.

Lesson 2: First Aid

Vocabulary

To administer first aid
To give someone first aid.

Main Point

On a job site, you must always know where to find first aid treatment and who the first-aiders are and where to find them.

Large worksites might have a specific room or trailer set aside as a first aid station. Smaller sites may have a designated (specially chosen) vehicle for first aid.

Lesson 3: Fire Safety

Main Point

To burn, a fire needs all three parts of the "fire triangle":

- flammable material (material that burns) like fuel,
- an oxygen supply,
- heat or an ignition source (a place where a fire could start).

To prevent fires, remove any one of the three parts of the fire triangle. For example, a fire extinguisher keeps oxygen from helping flames grow. Removing oxygen from flames stops the fire.

Lesson 4: Fire Extinguishers

Main Point

There are three types of fire extinguishers. Make sure you use the right one.

A Type
This is water-based water is the main ingredient) and is only good for fighting wood and paper fires. Never use this type of extinguisher to put out a gas, oil or electrical fire.

BC Type
This type of fire extinguisher is used only for gas, oil and electrical fires.

ABC Type
This type of fire extinguisher works well on most kinds of fires like electrical, wood and paper.

Lesson 5: Fighting Fires

Main Point

If a fire starts, you should first sound the alarm. You should decide if the fire is small enough to fight using a fire extinguisher.

If the fire is small enough, you should identify what kind of fire it is. Is it wood, paper, electrics, oil or gas that is burning? Once you know what is burning, you can choose the correct type of fire extinguisher to fight the fire.

You should fight a fire with a fire extinguisher using the P.A.S.S. method:

P - pull out the pin on the handle of the fire extinguisher.
A - aim the fire extinguisher at the base (bottom or lowest point) of the fire.
S - squeeze the handle.
S - sweep the hose across the base of the fire from side to side.

Module 11 Ladders and Scaffolding

Ladders • Portable Ladders • Scaffolding • Working from Scaffolds

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Lesson 1: Ladders

Vocabulary

Non-conductive
Not able to conduct heat.

CSA approved
If something is CSA approved, it is legal to sell in Canada.

Compromised
When the value or quality of something has been damaged, it has been compromised.

A rule of thumb:
A rule that you should follow all of the time. This kind of rule works in many situations.

At regular intervals
Regularly or with a similar distance between, like with fence posts.

To catch your breath
If you have been working hard you might need to stop "to catch your breath."

To be subject to wear and tear
To get worn down over time by using.

Main Point

There are three kinds of ladders:

1. Permanent ladders are bolted to the side of a building, such as a smokestack.
2. Job built ladders are built to specific design, measurements and materials.
3. Portable ladders are CSA (Construction Safety Association) approved. They are made from non-conductive (electricity cannot flow through them) materials like fiberglass or wood. Stepladders and extension ladders are examples.

To climb a ladder safely, you should:

1. Face the rungs (steps) of the ladder.
2. Have three points of contact (one hand two feet or two hands one foot).
3. Never carry tools or materials up a ladder. Use a hoist to lift them after you have climbed up.
4. Never do push-pull actions (where you move backwards and forwards) on a ladder. The force can pull you off balance. To keep balance, make sure your belt buckle is in the middle between the side rails of the ladder. Also, never use the top two rungs of the ladder.

Lesson 2: Portable Ladders

Vocabulary

To conduct electricity
To allow electricity to run through. For example, metal and water conduct electricity.

Main Point

Follow these rules for using a ladder safely:

1. For extension ladders, use the 4 to 1 rule. This means the base (bottom legs) of the ladder comes out one quarter of the height of the ladder. Less than a 4 to 1 pitch (angle) makes the ladder difficult to climb. More than a 4 to 1 pitch will cause the base of the ladder to slip out as you climb.
2. Make sure the top of the ladder is at least 1 meter, or 3 rungs (steps), above the surface you are climbing onto, to make it safer to get on and off the ladder.
3. Make sure there is only one person on the ladder at any time.

Lesson 3: Scaffolding

Vocabulary

Tricky
A task or a problem that requires a lot of care and skill because it is difficult or awkward.

To assemble manually
To put something together using your hands and maybe a few hand tools.

To span the full length
To cover the complete distance of something.

To be level
When something is straight across the top.

To be plum
When one thing fits right up against another thing with no gap or hole between them.

To be stable
When something doesn't move because it is tied down or braced in some way.

Main Point

There are three kinds of scaffolds: simple, complex and rolling.

1. Simple scaffolds no more than 2 to 3 levels high are used in most construction.
2. Complex scaffolds are much bigger. They carry workers, heavy tools and equipment.
3. Rolling scaffolds can move easily. They have wheels or castors, or they are on a wagon.

Use the following guidelines to work safely with scaffolds:

1. Scaffolds should only be erected (set up) by workers who are trained. Scaffolds must always be erected in accordance with the specifications (according to the directions) provided by the manufacturer or supplier. Workers must use the proper pins, bolts, braces, platforms and scaffold-grade planks (boards).
2. Never set up scaffolding near power lines.

Lesson 4: Working from Scaffolds

Vocabulary

To keep an eye on
To check something every few minutes.

Working Load
The working load is the total amount of weight that a worker can put on a scaffold. The working load is the combined weight of the workers, tools, equipment and materials.

Main Point

There should always be a safe way to climb up to the platform of the scaffold.

Use these guidelines for working from scaffolds:

1. Never use the supports and cross-braces to climb up to the platform of the scaffold. Use a portable secured ladder (a ladder that has been tied won) on a low-level scaffold. Use a built-in-ladder on the higher-level scaffolds.
2. Never lean a ladder on an unsecured scaffold (a scaffold that hasn't been tied down).
3. You must use the ongoing FLHA (field level hazard assessment) to check the scaffold regularly. This is especially important if the weather conditions change.
4. Pay attention to the scaffold tags. This is a label that will tell you the current level of safety of a scaffold. The tags are put on the scaffold at eye level or where you would normally climb on the scaffold.
    - Red tags mean "stop - don't use the scaffold".
    - Yellow tags mean "use the scaffold with caution (carefully) and follow the instructions."
    - Green tags mean the scaffold is "safe to use".
5. Once you are on the platform, make sure your working load doesn't exceed (go over) one quarter of the maximum load (biggest load) that the scaffold was designed for.

Module 12 Mobile Equipment

Responsibilities • Operating Procedures • Hazards to Be Aware of • Visibility and Traffic Control • Rigging and Hoisting

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Lesson 1: Responsibilities

Vocabulary

Careless
When you don't give enough attention or thought to doing something and it could hurt someone.

Double check
Check something once and then check it again.

Operator's manual
A booklet explaining how to install or use something.

Maintenance
Keeping something in good condition.

Main Point

You, your employer and your coworkers have responsibilities for mobile equipment on worksites. Everyone must be aware when equipment is being used and look out for other coworkers so that no one gets hurt.

The employer, or supplier for rental equipment, is responsible for making sure the equipment is in good working condition (not damaged or broken). The equipment must also be adequate (the correct equipment) for the task.

Make sure the machine is getting regular preventative maintenance (it is cleaned and fixed regularly) to be safe and work properly.

You must double check the equipment. To double check means to check the equipment yourself before you use it, even though someone else might have just checked it.

You must only use equipment that you are competent (trained) to use. You must follow all the safety practices and operating procedures (rules about how to use the equipment). You should read the operator's manual, or ask your supervisor, if you have any questions.

Lesson 2: Operating Procedures

Vocabulary

Do a full circle check
Walk all the way around the vehicle to check the important parts

Inflated
To be full of air

Obstacles
Something that blocks your way and stops progress.

A signaler and flag person
A person who controls traffic with flags or signs

To be fully extended
Something that is pulled out to its full reach. For example, when you hold out your hand for a handshake, your arm is fully extended to the other person.

To stay alert
To stay awake and constantly notice what is happening around you.

Audible backup alarm
A loud beeping alarm on equipment to let people know you are backing up.

Main Point

Use these operating procedures:

1. Before you start a vehicle, make sure you have read the operator's (owner's) manual and the manufacturer's specifications.
2. Conduct (do) a full circle check. Walk all the way around the vehicle and check the critical (important) parts. For example, make sure the tires are inflated (filled with the right amount of air).
3. For heavy equipment, the outriggers (legs) must be fully extended and supported on a stable surface.
4. Check the hydraulic lines for any leaks. Hydraulic lines are parts that work with pressure from liquids
5. When you are operating (driving or moving) the vehicle, pay attention to what is happening around you. If you are working near moving equipment, make sure you wear a high-visibility vest. When you are walking near mobile (moving) equipment, make eye contact with the operator. Make sure he sees you. You must make sure the operator knows you are working or walking nearby.

Lesson 3: Hazards to Be Aware of

Vocabulary

Electrocution
To be killed with electricity

The swing zone
The space something moves in

A spark
A small piece of something burning

To be within arms' length
To be very close

Bystanders
People who are watching and not acting

Main Point

You need to be very careful of overhead power lines when working with mobile (moving) equipment. Electricity can arc (shoot in a curve) from the power lines to the equipment even if your equipment isn't touching the power lines. The electricity could easily electrocute you.

Also, steer clear (stay out of the way) of the mobile equipment's "swing zone" (the space it moves in).

Use these steps to refuel an engine:

1. Switch off the engine.
2. Make sure a fire extinguisher is at arm's length (you could reach it if you stretched out your arm).
3. Ground the fuel tank.
4. Fill up the fuel tank
5. Replace the protective cap on the fuel tank.

Lesson 4: Visibility and Traffic Control

Main Point

Working near traffic is a safety hazard. Motorists (drivers) may not see you if you are not wearing high visibility clothing.

If you work near traffic, like a flag person, you need to be highly visible (easy to see) to motorists (drivers). Your employer must provide you with high visibility reflective clothing, like reflective safety vests or lime green coveralls, to keep you safe near traffic.

Lesson 5: Rigging and Hoisting

Vocabulary

Pinch points
Pinch points are places in rotating machinery where your hands, feet, hair or clothing can be caught and pulled into the moving parts of the machine.

To take up the slack
When a moving part pulls in a rope or cable.

To relay signals
When a second person shows others the signal the first person sent.

One dedicated channel for communication
On a radio or "Mike" style phone, keeping one channel free so that people can talk to each other when they need to for work purposes.

To be congested
When there are too many people or objects in one space.

Main Point

Only trained and qualified workers should do rigging (assemble or set up) and hoisting (lift up using ropes and pulleys) heavy loads. For safe rigging and hoisting:

1. Watch out for the swing zone of a crane (the space the crane moves in).
2. Always stay to one side (out of the way) of the load. Never get under a suspended (hanging in the air) load for any reason.
3. Use a tag line (rope) to control the load directly. Don't try to control the load with your hands.
4. You must be specially trained to be a rigger. However, you can help with rigging and hoisting if you are working under a trained and qualified rigger.
5. Only workers trained and qualified can act as signalers to a crane operator.

Module 13 Machinery, Tools and Equipment

Inspecting Equipment • Electrical Tools • Pinch Points and Guards • Air Activated Tools • Powder Actuated Tools

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Lesson 1: Inspecting Equipment

Vocabulary

To be deemed unsafe
Something is “deemed unsafe” when someone says that it is not safe to use or operate.

Main Point

On the worksite, you rely on your tools to help you do your job correctly. Make sure your tools are in good working condition (not broken or too dirty to use).

Use these steps to work safely with tools and equipment:

1. Every tool or piece of equipment has limits set by the manufacturer (rules that say how the equipment should be used). Read the operator’s manual so that you know how work within those limits. For example, always use the safety checklist if it comes with the equipment.
2. Inspecting tools and equipment is part of your ongoing FLHA (field level hazard assessment).
3. Don’t use a tool that you haven’t been trained to use adequately (properly). If you have any questions about the condition of a tool or piece of equipment, don’t use it. Go to your supervisor and ask what to do.
4. When you leave a piece of equipment, you must inspect it again when you return. This is part of your FLHA.
5. Tag out (put a tag or label on) or lock out (shut down and disconnect from the power source) any tool or piece of equipment that you think might not be in good working condition. Don’t try to fix anything you are not qualified to fix. Instead, tell your supervisor.
6. Lock out (shut down and disconnect from the power source) any machinery that might not be in good working condition. If a piece of machinery is locked out, don’t try to operate it.
7. If you need to lock out a machine, you must make a written entry in the lockout log book. Write all the necessary information about the lock out in the log book.
8. Only two people can remove a lock or tag - the person who put it on or a person with special authorization.

Lesson 2: Electrical Tools

Vocabulary

Faulty tools or cords
Tools that are not working properly or are broken

Main Point

Many electrical hazards are because of improper grounding or faulty tools and cords (tools or cords that don't work well). A worker needs to recognize these hazards and control them.

Use these steps to work safely with electric tools:

1. In double insulated tools, the outer case (outside) of the tools is electrically insulated (protected) from the internal mechanism (the inner machine). A double insulated tool has two prongs. The double insulated case protects a worker form getting a shock if a short circuit (a defect in circuit or wiring) occurs. If the double insulated tool has been damaged, such as a frayed cord, you could get a shock. Check your tools every day.
2. Grounded tools have three prongs. One of the prongs, the round one, connects the case of the tool to the ground, through a third wire inside the cord. If there is a short circuit, electricity will travel down the cord to the ground, not through your body.
3. Check cords for fraying (unraveling) or exposed (visible) wires. Check plugs for missing prongs. Don't use a plug if it has a missing prong.
4. Make sure electrical cords don't become a tripping hazard on a job site.

Lesson 3: Pinch Points and Guards

Main Point

Pinch points are places in rotating machinery where your hands, feet, hair or clothing can be caught and pulled into the moving parts of the machine. This can cause serious injuries. Keep your hands, feet, hair and clothing away from all pinch points.

Lesson 4: Air Activated Tools

Vocabulary

Ricochet
When something rebounds or bounces off a surface.

Hose couplings
The ends of hoses. Always make sure hose couplings fit together tightly.

Safety pins
Small metal pins that hold hose couplings together. They keep hose couplings from pulling apart.

Main Point

Air activated tools are very useful on the job site. However, compressed air (air under high pressure inside a container) is very dangerous.

Use these steps to work safely with air activated tools:

1. Don't point or blow compressed air (air under high pressure) at coworkers. Compressed air can actually blow air bubbles into your blood stream and kill you.
2. Don't point any air activated tools, like nail or staple guns, at coworkers. Air-powered nailers and staplers can cause serious injury to a coworker. They are like guns loaded with bullets. Only pull the trigger of the nailer or stapler when the nose is against the surface you want to hit.
3. Always remove the airline from the nailer or stapler before you load more nails and staples. Also remove the airline when you make adjustments (changes) or move the tool to another work area on the job site.
4. Make sure compressed air hoses aren't tripping hazards.
5. Always wear proper eye and ear PPE (personal protective equipment). Air activated tools are loud and nails and staples can fly around like bullets.

Lesson 5: Powder Actuated Tools

Vocabulary

Detonate
Explode

Main Point

You should only use a powder actuated tool if you are trained by a certified (qualified) instructor.

Use these steps to work safely with powder actuated tools:

1. When working near powder actuated tools, make sure you wear the proper ear and eye PPE (personal protective equipment).
2. When working near powder actuated tools, make sure you are aware of the potential hazards, like ricocheting nails (nails that hit objects and bounce around through the air).
3. If you find a live (unused) cartridge (small container that holds the powder)from a powder actuated tool, pick it up and take it to your supervisor. Never play with these cartridges. They can go off (explode) and cause serious injury.

Module 14 Excavating and Trenching

Potential Causes of Injury • Dial Before You Dig • Soil Types and Ground Conditions • Shoring, Cutbacks and Spoil Piles

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Lesson 1: Potential Causes of Injury

Vocabulary

Cave-ins
When walls collapse, especially underground or in mining.

Toxic gas leaks
A dangerous leak that can cause death.

Fatalities
Deaths

Suffocation
To die because you can't breathe.

To follow safety procedures to the letter
This means to follow all safety procedures exactly as they are written.

To put proper precautions in place
To think about hazards and how to eliminate or reduce them before you start work.

Trench
A narrow excavation (hole) below the surface of the ground. Its depth is usually greater than its width. A trench can be a confined space.

Confined Space
A confined space is an enclosed area with limited entry and exit points.

Main Point

A trench on a worksite is dangerous because it can be a confined space. This means the space has limited entry and exit points. The most dangerous trenches are deeper than they are wide and only have one entrance.

Safety procedures must be followed to the letter (very strictly):

1. Prevent cave-ins (soil at the top crumbles and falls into the trench). Don't put machinery, heavy equipment or materials close the edge of a trench.
2. Look out for toxic (poisonous) leaks inside the trench.
3. Watch out for tripping hazards inside the trench, such as tools and other equipment.
4. Be aware of trenches on the worksite. Don't stand too close to trenches. Don't fall in.

Lesson 2: Dial Before You Dig

Vocabulary

Dial Before You Dig
The process of calling ("dialing") the appropriate utility companies for the internet, phone, electricity and gas lines under the ground on your job site. The utility companies will come to the worksite and mark the ground to show where the utility lines are located. After this, it is safe to dig in the ground.

Hydro-vac service
A truck that uses pressurized water in a hose to wash away dirt to expose electrical cables or gas lines. The hydro-vac washes away the dirt from the cables or gas lines and then sucks up the dirty water using a vacuum hose.

Main Point

Always "dial before you dig." Phone the utility companies for electricity or gas. They will come and mark (draw) on the ground where the lines for electricity and gas are under the ground.

You run a high risk of injury if you dig without knowing what is beneath you. You could hit a cable with high voltage electricity. You could cause an explosion if you hit a gas line.

A supervisor will usually make the phone call to the utility companies. It often takes a few days to get the lines marked on the ground. Someone will visit the site, determine (find out) where the lines are, and then mark the lines with colour on the ground. They will put coloured flags in the ground as well.

Once the lines are marked, don't dig with power equipment too close to the lines. You might accidentally hit one of the lines. In fact, you may need to do the final digging by hand to expose the lines (make them visible). A hydro-vac service might need to do the final excavation (digging).

Line location sheets (short paper reports) give details about the lines and show where the lines are located on the site. The colours of the lines on the sheet will match the colours of the lines on the ground and the flags in the ground. The sheets and the flags will have an expiry date, usually two weeks.

Lesson 3: Soil Types and Ground Conditions

Main Point

The strength and stability (to make sure something doesn't move or fall) of trench walls is important. If something doesn't seem right, check with your supervisor.

If you find anything in the soil in a trench that seems unusual (different or unexpected), report it to your supervisor. It is your supervisor's responsibility to plan appropriate measures (proper procedures) to prevent cave-ins (soil at the top of a trench that crumbles and falls into it).

Many factors determine how stable or weak a trench wall is:

1. Types of soils on the worksite.
2. Amount of moisture in the soil. Exposed soil in a trench quickly loses moisture.
3. Changing weather.
4. Weight of machinery and other equipment or materials near the trench.
5. Vibrations of machinery and traffic near the worksite.
6. Undercutting, which means a waterline break can erode (wash away) the soil below the wall and make the wall weak.
7. Soil which has been excavated before, for example soil around buried utility lines.

Lesson 4: Shoring, Cutbacks and Spoil Piles

Vocabulary

Trench box
A box made of steel panels that hold up the sides of a trench.
Structural cage
A cage that is made of steel pipes which holds up the sides of a trench.
Shoring
A series of braces (wooden braces, hydraulic rams or pneumatic rams) placed in a trench to stop the walls from collapsing.
Spoil pile
Dirt stored next to the excavation (hole or trench) which is used to fill in the excavation later.

Main Point

Cave-ins (soil at the top of a trench that crumbles and falls into it) can be prevented by using shoring, cutbacks or spoil piles. There are specific rules for these. Make sure you understand the rules at your worksite.

Use these guidelines for safe shoring, cutbacks and spoil piles:

1. Shoring is when an engineer designs a trench box or structural cage to stop cave-ins.
2. The proper way to enter and exit a trench is with a secured (tied down) ladder. The ladder must be at least waist high above the ground. There needs to be ladders at regular intervals (regular distances) in long trenches.
3. If possible, the trench walls should be cut back at a 60 to 70 degree angle.
4. Spoil piles should be kept at least one stride (long step) away from the edge of the trench. They can create safety hazards if they are too close the wall of the trench. The extra weight can cause the trench walls to collapse (fall in).
5. High spoil piles can slide down into a trench. It is a good idea to make spoil piles stable or to make them slope backwards in a wide angle on the side facing the trench.
6. Make sure equipment doesn't create a tripping hazard inside a trench. Put tools and other equipment against the walls of the trench. Keep equipment away from the outside edge of the trench. It must not fall into the trench.

Module 15 Defensive Driving

The Basics • Impairments • Animals • Loading Vehicles • Cell Phones and Other Communication Devices

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Lesson 1: The Basics

Vocabulary

To anticipate
To expect or be aware that something is going to happen so that you can be prepared.

To be valid
When a license or document has been approved and signed by a legal authority.

Impairments
Any condition that may compromise (reduce) your ability to make good decisions while you are driving like fatigue (sleepiness).

Main Point

Most serious injuries and deaths of construction workers are because of motor vehicle accidents. That is why defensive driving is so important to understand and practice.

Defensive driving helps you anticipate dangerous events. It will help you think about what kind of danger might happen on the road before it happens. Your forward thinking (thinking about what could happen) can help stop incidents and injuries before they happen.

Do a pre-trip inspection (walk around) of the motor vehicle before you operate it.

1. Make sure there are no objects in the way because you don't want to drive into or over anything.
2. Check if the tires have enough air in them.
3. Check if all the lights work properly.
4. Make sure you can see clearly out of all the windows around you.

Lesson 2: Impairments

Vocabulary

To be socially acceptable
To do something most people think is okay.

Main Point

Don't drive if you have any impairment which might compromise (weaken) your ability to make good decision as you drive. You may lose your driver's license, or even go to jail, if you drive impaired.

Don't drive under the following conditions:

1. If you feel fatigue, which means to be tired. You could be tired from physical exertion (using your body too much), lack of sleep, illness, eating too much, drinking alcohol, taking medication or drugs or from carbon monoxide poisoning. If you are fatigued, your vision will fade in and out. It will be difficult to stay focused. You will feel like sleeping. Take regular power naps (short naps) to refresh yourself.
2. Alcohol slows down your ability to react to a situation quickly. Drinking alcohol will impair your coordination, balance and motor skills (ability to use your body and muscles properly). Drinking alcohol reduces your field of vision (how far you can see) and impairs your depth perception (whether you can tell how close or far away something is) and hearing. It impairs your sense of judgment. It will make you feel overly confident, but it really decreases your ability to concentrate.
3. Illegal drugs will also impair your ability to drive safely.
4. Prescription drugs and over the counter medication can also impair your ability to drive safely. Check the labels on any medication. It will tell you if you shouldn't drive after you've taken the medication. Ask your doctor or pharmacist if you are unsure.

Lesson 3: Animals

Main Point

Watch for animals when driving. If you have to swerve (turn the steering wheel sharply to the left or right) to avoid hitting an animal on the road, swerve away from the oncoming traffic.

Lesson 4: Loading Vehicles

Main Point

Don't overload a vehicle. Make sure you use the right size vehicle for the load you have to carry. Make sure your tail lights are visible and that you have a clear view out of all of your mirrors.

Overloaded vehicles have trouble braking and stopping quickly. They are also more difficult to handle on curves and turns.

If you are towing a trailer, make sure you know the manufacturer's instructions about how to tow it safely. Follow the limits for the vehicle that is doing the towing.

When you turn, a trailer will swing out and pull in the opposite direction you are turning your vehicle. Trailers will pull to the left on a right turn and to the right on a left turn.

Lesson 5: Cell Phones and Other Communication Devices

Main Point

Don't use a cell phone while driving. When you talk on a cell phone, you cannot concentrate on driving. It is difficult to pay proper attention to the road.

If you must take a call while driving, pull safely over to the side of the road and stop your vehicle before making your phone call.

Construction Safety Training System Study Guide: Strategies to help newcomers take the CSTS-09 course

This Construction Safety Training System Study Guide is a study aid for construction workers whose first language is not English. It will help users learn and understand the material in the CSTS-09 online test.

To download the PDF versions, or to order copies of the manuals, please visit the AWES website: www.awes.ca

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