

# Student WorkSafe 10-12 Resource for Teachers





# Student Worksafe 10-12

Resource for Teachers

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# Contents

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<b>Acknowledgments</b> . . . . .	<b>vi</b>
<b>Introduction</b> . . . . .	<b>1</b>
Why Student WorkSafe matters . . . . .	1
A new resource for new ways of teaching and learning . . . . .	2
Curriculum correlation. . . . .	3
How to use this resource. . . . .	4
Delivery approaches . . . . .	5
Student materials . . . . .	5
<b>Personalizing Students' Learning: Using a Pre-learning Questionnaire</b> . . . . .	<b>6</b>
Analysis Application . . . . .	.12
<b>Module 1: On the Job</b> . . . . .	<b>13</b>
<b>Module 2: Addressing Hazards on the Job</b> . . . . .	<b>21</b>
<b>Module 3: WorkSafe for Life</b> . . . . .	<b>41</b>
<b>Appendix A: Curriculum Connections</b> . . . . .	<b>47</b>
<b>Appendix B: Student Resources</b> . . . . .	<b>51</b>
You and the Working World . . . . .	52
Workplace Rights and Responsibilities. . . . .	54
Search the Regulation . . . . .	57
Hazard Recognition Scenarios. . . . .	59
Musculoskeletal Injuries (MSIs). . . . .	75
Noise Hazards . . . . .	79
Environmental Exposure: Heat, Sun, and Cold. . . . .	80
Exposure to Mineral and Chemical Hazards. . . . .	84
Exposure to Biological Hazards. . . . .	90
Employability Skills Self-Assessment . . . . .	96
<b>Appendix C: For More Information</b> . . . . .	<b>97</b>

# Acknowledgments

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# Introduction

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## Why Student WorkSafe matters

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Young workers are highly vulnerable to workplace injuries.

- On average, 27 young workers are injured every day in B.C.
- On average, 7 young workers are permanently disabled each week in B.C.
- Young males, in particular, face a 48 percent higher risk of injury than the overall working population.
- Workers are at the greatest risk of being seriously injured during their first 6 months on the job.
- Approximately 20 percent of the injuries and fatalities to young workers occur during the first month on the job.

WorkSafeBC is committed to reducing the number of injuries and fatalities among young workers in the province. WorkSafeBC dedicates significant time and resources to young worker injury prevention because

- **Young workers face a higher risk of injury.** It's important to focus prevention efforts on the biggest problem and where they are likely to get the best results. Everyone deserves a safe workplace, but those at higher levels of risk need a higher degree of focus. Younger workers are at greater risk because they lack the experience of their work peers, they often work in environments with more hazards, and they frequently engage in more physical work than their older counterparts.
- **There is a heightened sense of tragedy when a young worker is seriously injured or killed at work.** There is an extreme sense of loss associated with the serious injury or death of a young person. Rightly or wrongly, it just seems more tragic when a young person is robbed of a healthy future.
- **By focusing our efforts, we create the opportunity for long-term social change.** It's called safety culture, and we know by the success of anti-smoking and anti-drinking-and-driving campaigns that by focusing and reinforcing a message it is possible to achieve behavioural change. Focusing on young workers does make a difference, especially when you consider that today's injury rate for young male workers is a quarter of what it was three decades ago.

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## Video

How can educators keep young workers safe?



[www.youtube.com/  
watch?v=ZDW2k  
RnDZOs](https://www.youtube.com/watch?v=ZDW2kRnDZOs)

The Student WorkSafe program is an integral component of WorkSafeBC's strategy to create and achieve long-term reductions in occupational injuries and disease. Schools are in a unique position to take advantage of the settings where students are already engaged, and to provide the skills and attitudes young people need for a good, safe start to their working lives.

## A new resource for new ways of teaching and learning

Workplace safety education is not new. WorkSafeBC launched its first young worker safety initiative in 1990. Over the years, these programs have evolved to address a broad range of audiences with interests in young worker safety.

Yet, while the rationale and objectives for teaching WorkSafe concepts to students remain the same, the school learning environment has changed – and continues to change – since the first young worker safety initiatives were introduced. To that end, this version of *Student WorkSafe 10–12* has been designed to

- Provide for greater student choice and flexibility – allowing students to personalize their learning by focusing on topics that are most relevant to their education and career goals
- Address a wider range of curriculum areas and “big picture” education goals – the previous focus on Planning 10 has been expanded to include activities that address other provincially prescribed curricula, including Graduation Transitions, Work Experience, and Secondary School Apprenticeship (see the next section in this introduction, “Curriculum correlation,” for more information)
- Be adaptable to a variety of instructional settings – allowing teachers to use the activities and resources in whole class, small group, and independent learning situations
- Create opportunities for students to think critically about workplace safety, and to relate workplace safety concepts to other areas of their lives – at school, at home, and in the community



## Curriculum correlation

This edition of Student WorkSafe addresses prescribed learning outcomes in the following provincial courses:

Module	Course
Module 1: On the Job	<ul style="list-style-type: none"> <li>• Planning 10</li> <li>• Graduation Transitions 10–12</li> <li>• Ministry-Authorized Work Experience 12</li> <li>• Secondary School Apprenticeship</li> </ul>
Module 2: Addressing Hazards on the Job	<ul style="list-style-type: none"> <li>• Planning 10</li> <li>• Graduation Transitions 10–12</li> <li>• Ministry-Authorized Work Experience 12</li> <li>• Secondary School Apprenticeship</li> </ul>
Module 3: WorkSafe for Life	<ul style="list-style-type: none"> <li>• Planning 10</li> <li>• Graduation Transitions 10–12</li> </ul> <p>Additionally, the activities in this module can be used to support learning in the following courses, depending on the options selected by students:</p> <ul style="list-style-type: none"> <li>• Dance 10, 11, and 12</li> <li>• Drama 10, 11, and 12</li> <li>• Home Economics 10</li> <li>• Home Economics 11 and 12 courses (including Foods, Textiles, and Cafeteria Training)</li> <li>• Music 10, 11, and 12</li> <li>• Physical Education 10</li> <li>• Technology Education 10</li> <li>• Technology Education 11 and 12 courses (including Automotive Technology, Carpentry and Joinery, Drafting and Design, Electronics, Industrial Design, and Metal Fabrication and Machining)</li> <li>• Tourism 12</li> <li>• Visual Arts 10, 11, and 12</li> </ul>

See Appendix A for more detailed curriculum information.

In addition to prescribed learning outcomes for specific courses, the activities in this resource can help students achieve selected provincial expectations in relation to the B.C. Ministry of Education’s cross-curricular competencies and the attributes of a B.C. graduate.

Cross-curricular competencies	Attributes of a B.C. graduate
<ul style="list-style-type: none"> <li>• Critical Thinking</li> <li>• Personal Awareness and Responsibility</li> <li>• Social Awareness and Responsibility</li> <li>• Digital Literacy</li> </ul>	<p>In their career development, graduates should achieve:</p> <ul style="list-style-type: none"> <li>• the confidence and competencies they need to be self-directed individuals who display initiative, set priorities, establish goals, and take responsibility for pursuing those goals in an ever-changing society</li> <li>• experience in planning for, and working towards, career and life goals</li> <li>• the skills required to work effectively and safely with others, and to succeed both as individual and collaborative workers</li> </ul>

## How to use this resource

The three modules in this resource each contain multiple activities to address a range of learning concepts. It is not expected that you will necessarily conduct all of the activities; rather, the modules have been designed to allow you to select those activities that best suit your instructional situation in terms of

- Course(s) taught
- Number of students in your learner cohort
- Available resources (time, technology, etc.)
- Students’ areas of interest

For more guidance in selecting the most appropriate activities, please refer to the next section, "Personalizing Students’ Learning."

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## Delivery approaches

This teacher guide has been designed to be used in various school settings – including full class groupings, small groups, and individuals. To assist you in choosing which activities are most appropriate for your students, the following key has been used throughout the Activities in the three modules:



Individual activities



Small-group activities – appropriate for groups of three to six students



Large-group activities – for full-class settings

Note that these icons refer to the starting size of your student groupings. Activities suitable for full-class settings may also include breaking into smaller groups, and small-group settings may include individual work.

## Student materials

To support the activities in this teacher guide, WorkSafeBC has established a page specifically for use by students: [www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students). This Student Resource Page houses links to online, print, and video resources that support the various activities in this teacher guide.

The “Questionnaires and worksheets” section of the student website includes resources in fillable PDF format that students will be using as part of the various activities in this teacher guide. Students can save these files for electronic completion and submission, or they can print and submit them as hard copies. The worksheets and other selected materials contained on the Student Resource Page are also provided in Appendix B of this teacher guide.

This web page also provides a link to the *Independent Learning Guide* – a resource designed for students working independently as part of a self-directed learning plan or a distance education course.

# Personalizing Students' Learning: Using a Pre-learning Questionnaire

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Regardless of how homogeneous a class might seem, the individual students will undoubtedly exhibit differences (perhaps slight, perhaps significant), when it comes to

- Learning strengths and learning needs (e.g., aptitude with respect to particular school subject areas, extent to which they have already acquired particular transferable and employability skills)
- Personal background and life experience outside school
- Attitudes toward school as well as toward the working world
- Interests (both in and out of school)
- Perceptions regarding what others consider important, valuable, etc.

Teaching practice that seeks to support personalized learning takes account of these types of differences among your students.

If you approach the topics covered by this resource late in the school year, you will doubtless already know your students quite well. Still, their experience in the workplace, their expectations regarding employment, and their attitudes toward the working world may not have been part of their interactions with you, or even the subject of any real reflection on their part. Yet these are all important factors, not only in helping them function safely and effectively in the workplace (an important objective of the teaching suggested in this resource) but also in positioning them for future career success and satisfaction.

This is why we have created and included a pre-learning questionnaire, “You and the Working World,” which is designed to

- Spur reflection on students’ part concerning their own experience, attitudes, and expectations with respect to life in the workplace
- Provide them (and you) with some prepared content or opinion that they can call upon to complete follow-up learning tasks
- Give you some insight that enables you to choose and configure learning activities to most benefit your students (i.e., to personalize your students’ learning)

To support this third objective, this resource also includes an “analysis” version of “You and the Working World,” which provides a rationale for each question, some thoughts on how individual student responses might be interpreted, and/or some ideas for how to build on this question in follow-up discussion or other learning activities.

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Having each student complete and return it prior to your first Student WorkSafe class (so you can review and consider the responses) will likely prove the most effective way to use this instrument. For most students, the questionnaire should take no more than 5 minutes to complete.

An electronic, fillable PDF version of the questionnaire is included on the Student Resource Page of the WorkSafeBC website: [www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students). A print version is also included in Appendix B of this teacher guide.

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## You and the Working World

### Analyzing the Results

The student version of this questionnaire is contained in Appendix B of this teacher guide, as well as on the Student WorkSafe web page: [www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students).

<p>1. Have you ever had a paid job or work experience placement with an employer?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>(If you answered “yes,” please go to question 2. If you answered “no,” please jump directly to question 9.)</p>	<p>Your students’ responses to this question will allow you to quickly see whether you should arrange for them to approach the subject workplace norms on the basis of their actual work experience or exclusively on the basis of their preconceptions and expectations.</p> <p>One interesting category of respondents will be students who have work experience, but who answer “no” because they created their own jobs as self-employed entrepreneurs. See the “Extension” activity in Module 1 for ideas on how you can tap into students’ entrepreneurial experiences or aspirations.</p>
<p>2. How would you describe the training or orientation you received when you started the job? (Choose one response only.)</p> <p><input type="checkbox"/> Orientation was extensive, thorough, and formal (i.e., an organized session lasting an hour or longer).</p> <p><input type="checkbox"/> Orientation was thorough and clear, but informal (i.e., things explained as typical work situations arose).</p> <p><input type="checkbox"/> Orientation and training were haphazard (i.e., only some things were explained).</p> <p><input type="checkbox"/> I do not remember receiving any orientation or training.</p>	<p>This question encourages students to reflect on what is possible and appropriate in the way of training and orientation for particular types of jobs. It can also serve as a basis for subsequent discussion of how the preferred learning approaches of different individuals might factor into the type of training offered.</p> <p>A response indicating that a student has received little or no orientation or training (i.e., the fourth option checked off) may be a red flag indicating that employment standards are not being met. Check out the same student’s responses to questions 3, 4, and 5.</p>

<p>3. Which of the following most closely describes your opinions about your orientation and training? (Choose one response only.)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Very good coverage of what I needed to know: material all seemed worthwhile and necessary</li> <li><input type="checkbox"/> Felt like “overkill”: too much to absorb and not all of it really necessary</li> <li><input type="checkbox"/> Not very thorough: left out lots of things I had to discover later</li> <li><input type="checkbox"/> Somewhat confusing: left me feeling overwhelmed by the demands of the situation</li> <li><input type="checkbox"/> Not much to it, but no matter, as the job requirements seemed self-evident</li> <li><input type="checkbox"/> It was completely inadequate or non-existent</li> </ul>	<p>This question focuses as much on the respondent’s attitude toward orientation and training as on his or her actual experience. A student whose responses suggest a disdain for training and preparation may benefit from conversation and examples that persuasively address the merits of these aspects of the work experience.</p>
<p>4. Who provided most of your orientation and training? (Choose one response only.)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The person to whom I reported (i.e., boss or supervisor)</li> <li><input type="checkbox"/> An experienced co-worker</li> <li><input type="checkbox"/> No one specific person</li> <li><input type="checkbox"/> I received no meaningful orientation or training</li> </ul>	<p>This question sets the stage for a clarification of the respective roles of worker, supervisor, and employer – especially where safety training is concerned.</p>
<p>5. Which of the following topics were covered as part of your orientation and training? (Choose all that apply.)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Terms and conditions of employment</li> <li><input type="checkbox"/> Location of (access to) facilities, equipment, and supplies</li> <li><input type="checkbox"/> Person(s) to speak to about questions or concerns</li> <li><input type="checkbox"/> Procedures for carrying out assigned job tasks</li> <li><input type="checkbox"/> Safety hazards of the job</li> <li><input type="checkbox"/> Workplace health &amp; safety rules and procedures, and reasons for those rules and procedures</li> <li><input type="checkbox"/> Emergency procedures and first aid facilities</li> <li><input type="checkbox"/> None of the above</li> </ul>	<p>The check box options listed for this question identify all the elements that would likely be included in an exemplary workplace orientation program. Responses to this question reveal to you how thorough and extensive the training and orientation were that the respondents received as part of their work experience.</p> <p>The workplace experience of a student who feels able to check every box (except the last one) can accordingly be used as a model for what others might reasonably expect in their future jobs. A student who checks only one or two boxes (and especially one that checks only the last box) provides you with a meaningful, close-to-home example of deficiency on the part of an employer.</p>

<p>6. How much opportunity for interaction did you have with your supervisor or employer during your day-to-day work? (Choose one response only.)</p> <p><input type="checkbox"/> Constant (we worked together, most of the time)</p> <p><input type="checkbox"/> Frequent (at least six or seven times a day, usually)</p> <p><input type="checkbox"/> Occasional (three or four times a day, usually)</p> <p><input type="checkbox"/> Very little (twice a day, or less)</p>	<p>Responses to questions 6 and 7 can provide you and your students with a platform for approaching the all-important subject of communicating effectively with a supervisor/employer.</p> <p>Most often, young people who are new (or relatively new) to the workforce are extremely eager to do a good job and impress “the boss.” Many quickly recognize that their supervisor is a busy person whose time is valuable, and so they frequently conclude that the number one way to impress is to be low-maintenance: Don’t ask a lot of questions. Don’t ask to be shown something two or three times. Keep your mouth shut, don’t make waves, and don’t take up the boss’s time and attention.</p>
<p>7. How easy was it for you to approach your supervisor with questions and concerns related to your work? (Choose one response only.)</p> <p><input type="checkbox"/> Very easy (she/he always took time to speak with me and would respond to anything I raised)</p> <p><input type="checkbox"/> Fairly easy (I might have to wait to raise questions or receive answers to questions I asked, but I never felt uncomfortable raising work issues)</p> <p><input type="checkbox"/> Sometimes challenging (I sometimes felt unwilling to say anything that might make me seem stupid, uncooperative, or difficult)</p> <p><input type="checkbox"/> Quite difficult (he/she was often not around)</p>	<p>An effective supervisor can overcome this diffidence on the part of a new young worker, but it can be extremely helpful if a young worker likewise has</p> <ul style="list-style-type: none"> <li>• a more sophisticated view of the supervisor’s real priorities (which should include avoiding “costly” errors on the part of a new, inexperienced employee)</li> <li>• a willingness and capacity to communicate (e.g., ask questions) clearly, respectfully, and in a timely way about job situations</li> </ul> <p>You can use the information gathered from questions 2-7 to help structure activities related to on-the-job safety training and communicating with supervisors. See the “Preparation” section in Module 1 for more information.</p>



<p>8. Did you ever witness or experience a situation where someone was or might have been seriously hurt at work?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes (Briefly describe what happened.)</p>	<p>“No” responses to this question will not provide much basis for further exploration, but a “yes” response on the part of even one student in your class can furnish an important object lesson for the rest. Caution must be exercised in working with this, however, since even near-miss incidents can be disturbing to a worker (especially a new or young worker), and it is important to avoid having the experience sensationalized, trivialized, or misinterpreted.</p> <p>If a student reveals experience or knowledge of a workplace injury or near-miss situation, a sympathetic, one-on-one debrief of the incident with a student (to ascertain feelings, sensitivities) would be important prior to using it as an object lesson to discuss aspects such as</p> <ul style="list-style-type: none"> <li>• How could this have been prevented? (What might the worker/supervisor have done differently?)</li> <li>• Could something comparable happen in the place where you worked (or could imagine working)?</li> </ul>
<p>9. What types of work might you be interested in for your next/first job? (Please give only your first, most likely option.)</p>	<p>Virtually all of your students should be able to provide some sort of “aspirational” response to this question. Depending on the demographics of your class, you may find much variation in the responses or considerable repetition. This may suggest a learning approach based on grouping students into either heterogeneous or homogeneous discussion groups.</p> <p>See the “Preparation” section in Module 2 for suggestions on how you can apply this information to classroom activities.</p>
<p>10. What kinds of safety risks do you think there might be in that job? (Can you realistically imagine how someone might get hurt doing that job?)</p>	<p>This question is designed to stimulate thinking about workplace risk in relation to jobs the students might aspire to obtain. Awareness of risk is an important precursor to any meaningful exploration of</p> <ul style="list-style-type: none"> <li>• The spectrum of hazards and risks associated with any given industry, and the differences among industries when it comes to danger</li> <li>• The difference between prevention and emergency response</li> <li>• Risk management or mitigation</li> <li>• The respective responsibilities of employer, supervisor, and worker in relation to safety</li> </ul>

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## Analysis Application

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Taking the time to carefully review and track your students' questionnaire responses can enable you to plan follow-up learning activities – particularly those in Modules 1 and 2 of this resource – that capitalize on their experience and interests. Their responses to questions 1 and 9 are especially important in this regard.

For specific strategies for tailoring activities to the survey responses, see the "Preparation" sections of Modules 1 and 2.

# Module 1: On the Job

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## Key Messages to Students

- ▶ You have a right to be safe on the job, and you have a responsibility to play an active part in job safety.
- ▶ All jobs have potential safety hazards, but those hazards can always be minimized or eliminated.
- ▶ Effective communication plays an important role in staying safe on the job.

## Overview

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This module introduces students to the rationale for workplace safety, and the very real consequences that can occur when safety procedures are not followed. Students will also learn about their rights and responsibilities while on the job, as well as the responsibilities of supervisors and employers.

## Curriculum Connections

The activities in this module can help students achieve prescribed learning outcomes in the following provincial courses:

- Planning 10
- Graduation Transitions 10–12
- Ministry-Authorized Work Experience 12
- Secondary School Apprenticeship

## Student Content

(All student content found at [www2.WorkSafe.com/students](http://www2.WorkSafe.com/students))

- *Lost Youth* (video)
- *Rights and Responsibilities for New and Young Workers* (online interactive resource)
- *Young and New Workers: They're Worth Your Attention* series (13 separate videos in 4 sectors)

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**Did you know...**

The majority of young worker fatalities are in the construction sector.

## Preparation

Preview the video, *Lost Youth*. If desired, and depending on the interests of your students and the time available, you may wish to use only one or two of the individual stories (John, Michael, Jennifer, or Nick) – these videos are also found on the Student Resource Page ([www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students)).

Refer to students' answers from questions 2-7 in the "You and the Working World" survey to prepare student groupings for the "Training and Orientation" activity.

If any students answered "yes" to question 8, meet with this student individually to discuss the nature of the incident, and explore the possibility of using it as the basis for the "Effective Communication" activity.

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## Activities

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### Workplace Safety Attitudes



Read the following sentence aloud: “Workplace safety is not an important concern for me.” Have students stand on one side of the room if they agree with the statement, and on the other side if they disagree.

Next, read the following statistics:

- On average, 27 young workers are injured every day in B.C.
- On average, 7 young workers are permanently disabled each week in B.C.
- Approximately 20 percent of the injuries and fatalities to young workers occur during the first month on the job.

Ask students whether this information is surprising, and whether or not it changes their attitude about workplace safety.

### Lost Youth



View the video, *Lost Youth*. Advise students that there are some scenes that contain graphic re-enactments of workplace injuries; they should feel free to turn away or close their eyes if these scenes make them uncomfortable.

Debrief the video using questions such as the following:

- Which of the four stories made the most impact on you? Why?
- Were there any facts that surprised you?
- How have lives changed for the young workers in the video and their families? How would your life change if you suffered a similar workplace injury?

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### Assessment

Read the following statements aloud:

- You get the job that you think you can do, and I knew I could do the job.
- I wanted everyone there to be surprised with how good and efficient I worked.
- If someone told me they wanted something done, there was no way I was going to say no.
- I wanted to impress everyone. I wanted to show them I could do everything they could.
- It seemed unsafe, but I felt that was an inherent part of the risk of any job. I felt that the things I did that were dangerous were just part of the job.
- I had seen so many guys do it, I had done it a few times myself, and I didn't see anything wrong with it.
- Make sure you know what kind of training you need. Know your rights, know what is required of you and what is required of your employer.
- If you don't know a machine, and they expect you to use it, just say no. Say, "I will not touch that machine until you train me to use it."

Ask students to select one or more of these statements, and write a brief response explaining what that statement means to them in the context of what they saw in the video.

### Rights and Responsibilities



Have students work independently or in pairs to complete the "Rights and Responsibilities" online activity.

### Assessment

Have students submit their results from the quiz found at the end of the "Rights and Responsibilities" online activity as the basis for assessment.

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## Orientation and Training



Form small groups so that each contains one student with an actual work experience story (Preparation). Have the other group members interview this “subject” student about his or her experience using questions such as those provided in the "You and the Working World" questionnaire (e.g., questions 2 to 7), supplemented with further questions such as

- Did you subsequently learn things about the job that were not covered in the training/orientation?
- What did you particularly like/dislike about the way your supervisor treated you?

Once group members have obtained the subject student’s work story, their assignment might involve discussing it to come up with

- Recommendations to the employer about how the training and orientation could be improved
- An evaluation of the effectiveness of the supervision provided (e.g., on a five-point scale from poor to excellent), supported by reasons (i.e., specific accolades for positive supervisory actions and specific things the supervisor could have done to provide better guidance, direction, and feedback to the subject student)
- Suggestions about things the subject student could have done to have a better work relationship with her/his supervisor

## Effective Communication



Review what students already know about types of effective communication:

- Two way – involves asking the right questions and listening to the answers
- Use of open-ended questions where appropriate
- Rephrasing or repetition of the question if you don’t get the answer you need at first

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**Did you know...**

The number one way for young workers to sustain a serious injury is a fall. Even working from a short ladder can be a fall risk.

As previously discussed, the law requires that all workers be trained about any workplace hazards. Workers also have to play an active part in that training: they are required to listen and watch attentively, and to ask questions if they don't understand.

Divide students into groups, and have them select one of the workplace incident scenarios depicted in the *Lost Youth* video. Alternatively, they can create their own scenario depicting a workplace setting related to their own work interests. (If any of your students have witnessed a workplace incident themselves, as identified in question 8 of the "You and the Working World" questionnaire, that incident could also be used here.) Have them create a scenario that depicts what happened before the incident, and how proper training and questioning could have prevented the incident.

Supply questions such as the following that students could use in their scenarios:

- Who is my immediate supervisor?
- Should I be wearing safety glasses for this job?
- It seems very loud in here. Do I need hearing protection?
- I've been shown two different ways to use this (tool/equipment). Which is the correct way?
- How do I conduct a pre-use inspection on this (piece of equipment)?
- Can you show me the right way to use (tool)?
- Where is the emergency shut-off for this (piece of equipment)?
- Who is my first aid attendant?
- I find my back and arms get sore when I do this for a long period of time. Is there another way I can do this?
- My hands are starting to get sore after doing the same work for hours at a time. Can I switch tasks with someone else for a while?
- I don't have any non-slip shoes. Where can I get some?
- I only got 3 hours of sleep last night. Is it safe for me to operate this machine?



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## Assessment

Assess students' scenarios, looking for evidence that they are able to

- Demonstrate effective questioning technique
- Show evidence of their knowledge of potential workplace hazards and prevention of those hazards

## Young Worker Training



Have students watch any of the *New and Young Worker: They're Worth Your Attention* videos (students can select which videos to view based on area of interest). For the workplace depicted in their selected video, ask them to

- Identify the specific workplace practices aimed at new and young workers
- Why these practices are a good idea
- How these practices could be applied to another work setting

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## Summative Assessment

Ask students to interview each other about

- What they expect from a job
- How their lives might change if they were injured on the job
- Whether their attitudes about workplace safety have changed as a result of the activities in this module, and if so, how

## Extensions

If your class includes one or more students whose work experience or future aspirations involve an entrepreneurial undertaking (e.g., operating a lawn-mowing or house-painting business in the summer), consider assigning an independent research project. The student could research and report on requirements that she or he would have to meet if wanting to hire others to help. These requirements would include those related to payroll (e.g., deductions, remittances on behalf of employees) as well as safety responsibilities. Sources of information on these subjects might include the following:

- WorkSafeBC – Occupational Health and Safety Regulation  
[www2.worksafebc.com/publications/OHSRegulation/Home.asp](http://www2.worksafebc.com/publications/OHSRegulation/Home.asp)
- B.C. Employment Standards Branch  
[www.labour.gov.bc.ca/esb/welcome.htm](http://www.labour.gov.bc.ca/esb/welcome.htm)
- Canada Revenue Agency  
[www.cra-arc.gc.ca/bsnsss/menu-eng.html](http://www.cra-arc.gc.ca/bsnsss/menu-eng.html)

# Module 2:

## Addressing Hazards on the Job

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### Key Messages to Students

- ▶ Learning is a process that will continue throughout your working years.
- ▶ All jobs have potential safety hazards, but those hazards can always be minimized or eliminated.
- ▶ Effective communication plays an important role in staying safe on the job.

## Overview

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This unit addresses

- Common causes of workplace injuries
- Common hazards in a range of jobs and workplace settings
- Strategies for avoiding hazards and minimizing risks on the job
- How the proper use of PPE (personal protective equipment) can minimize the risk of workplace injuries

### Curriculum Connections

The activities in this module can help students achieve prescribed learning outcomes in the following provincial courses:

- Planning 10
- Graduation Transitions 10–12
- Ministry-Authorized Work Experience 12
- Secondary School Apprenticeship

### Student Content

(All student content found at [www2.WorkSafe.com/students](http://www2.WorkSafe.com/students))

- Search the Regulation (worksheet – fillable PDF)
- Hazard Recognition (worksheet – fillable PDF)
- *Be a Survivor* (pamphlet)
- other WorkSafe print, online, and video resources (depending on students' project choices) – addressing topics such as
  - MSIs
  - exposure to hazardous materials
  - exposure to environmental hazards
  - noise hazards and hearing conservation

- 
- fatigue
  - workplace violence
  - other workplace safety issues (e.g., retail, automotive, film industry, tree planting, driving safety, FOODSAFE, hearing conservation)

#### **Did you know...**

The riskiest activity for young workers in B.C. is lifting objects when working as retail clerks or shipper-receivers.

### **Preparation**

This module contains a number of activities that focus on hazards and injury risks in various workplace settings. It is not expected that you will necessarily undertake all of these activities, but rather will select those most appropriate for your students.

Refer to students' answers from question 10 in the "You and the Working World" survey to prepare student groupings for the "Workplace Safety Hazards" activity. In addition, you may choose to tailor the questions in the "Search the Regulation" activity based on students' specific workplace interests.

Contact your local WorkSafeBC office (see [www.worksafebc.com/contact\\_us/regional\\_locations/default.asp](http://www.worksafebc.com/contact_us/regional_locations/default.asp) for a list) to arrange for a prevention officer to visit the class for the Know Your PPE activity. If you are unable to arrange for a WorkSafe prevention officer, a safety officer from a local workplace would be a good substitute.

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# Activities

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## Common Causes of Injury



Divide students into groups, and assign one of the following job categories to each:

- Retail and warehouse
- Farming, landscaping, and tree planting
- Construction
- Restaurant and foods
- Office work

On a blank piece of paper, have students brainstorm as many workplace hazards as they can think of for each sector. After 5–7 minutes, have them hand their papers to another group to continue the brainstorm for an additional 2–3 minutes. Continue until all groups have worked on all categories and the sheets have been returned to their original group.

Bring the class back together to discuss the various hazards identified. What hazards appear in more than one workplace sector?

Introduce the following categories of hazards and have students make any additions necessary to their lists.

- Physical hazards – involve accidents or physical trauma from falling, slipping/tripping, being struck, being caught in machinery, being cut, or being burned. Injuries can include bruising, broken bones, cuts and gashes, and burns.
- Chemical hazards – exposure to unsafe chemicals in liquid, gas, or solid form. Injuries can include burns, asphyxiation, rashes, or illness.
- Ergonomic hazards – improper lifting, repetitive motions, or overextending. Injuries can include sprains and strains of any joint or muscle, as well as repetitive strain injuries such as carpal tunnel syndrome.
- Biological hazards – exposure to bacteria, viruses, parasites, moulds, and other hazardous lifeforms. Injuries can include diseases and poisoning.

- 
- Natural environment hazards – exposure to cold, heat, sun, or water. Injuries can include heat stress, hypothermia, frostbite, sunburn, and drowning.
  - Psychosocial hazards – stress, workplace violence, bullying, shiftwork, distractions, etc. Any of these situations can lead to an accident and cause injuries.

The risk of injury can be even greater when the hazards are combined with situations such as working alone or in isolation, working in a confined space, or if the worker is fatigued, distracted, or impaired by drugs or alcohol.

Ask students if they can guess the most common hazards for young workers. According to WorkSafeBC, the most common causes of accidents and injuries for young people on the job are

- Lifting objects when working as retail clerks and shipper-receivers
- Falling from ladders, scaffolding, or other raised platforms
- Using knives in food service or retail
- Working with hot substances or equipment in restaurants
- Driving or riding in vehicles, and working near mobile equipment
- Using food slicers in restaurants or supermarkets
- Working near any equipment or machinery when it's in operation

Refer to the young workers portrayed in the *Lost Youth* video (in the previous module). What types of hazards did they face? Are these consistent with the top hazards?

### Spot the Hazard



(Note: This activity can be conducted on its own or in conjunction with the next activity, "Workplace Safety Hazards.")

Assign one or two of the hazard scenario images from the Hazard Recognition resource (available at the Student Resource Page as well as in Appendix B of this teacher resource) to each individual or small group of students. Where possible, assign images according to students' areas of work interest. For their assigned scenario(s), have students identify the potential hazards and risks of injury they see in the image, and what the worker should do to minimize the risk.

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Bring the class back together to share their findings. Create a set of general guidelines for hazard identification and mitigation that can be used in most work settings, such as:

- Keep workspace clear and uncluttered
- Follow safe lifting procedures
- Wear appropriate protective equipment
- Pay attention
- Follow all safety procedures
- Ask for assistance, if required

To extend this activity, students can work independently or in groups to complete additional “What’s Wrong with this Photo” challenges online at the WorkSafeBC website: [www2.worksafebc.com/Publications/Multimedia/Photos.asp](http://www2.worksafebc.com/Publications/Multimedia/Photos.asp).

## Workplace Safety Hazards



Facilitate the formation of small groups made up of students who have similar aspirations for their next/first job. Have each group pool members’ ideas regarding possible safety hazards associated with work in that type of job (as per question 10 of the "You and the Working World" questionnaire and the previous "Common Causes of Injury" activity). Students can also use the additional resources found online at the Student Resource Page for more information about specific workplace hazards.

For each hazard identified, ask students to come up with ideas for addressing those hazards. Encourage them to consider addressing hazards by

- Changes to the workplace environment
- Development of safety procedures or training for workers
- Use of protective equipment

Debrief by having each group share its ideas and providing opportunities for others in the class to supplement either their list of possible hazards or their proposals for dealing with them.

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If students are having difficulty coming up with suitable hazard scenarios, they can review the Hazard Alert posters found at the WorkSafeBC website for ideas: [www2.worksafebc.com/publications/HazardAlerts.asp](http://www2.worksafebc.com/publications/HazardAlerts.asp).

### Extension

As part of the debrief, point out that WorkSafeBC encourages employers to consider the “hierarchy of controls” when addressing workplace hazards:

- Elimination of the hazard altogether – first choice, but not always possible or practical
- Substitution – use a different work practice or equipment instead (e.g., a non-toxic substance instead of a toxic chemical)
- Engineering controls – physically modifying the work environment to separate the worker from the hazard
- Administrative controls – changing work practices to minimize or control the hazard; includes worker training, safe work procedures, and work schedules
- PPE (personal protective equipment) – using appropriate protective clothing and apparatus to protect workers

Have students revisit their solutions to the hazards they identified, and determine which solutions fit each category of control.

### Search the Regulation



Explain to students that all workplaces are governed by the Occupational Health and Safety Regulation, which outlines the legal safety requirements that must be met. The Regulation is long and complex, and it is not expected that anyone – including supervisors or employers – will have it memorized. However, supervisors and employers **must** comply with all the relevant requirements, and need to be able to access the latest information. In addition, workers should take an active role in their own safety by knowing how to access regulatory information related to their jobs. The best tool for doing so is



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the online OHS Regulation on the WorkSafeBC website:  
[www2.worksafebc.com/Publications/OHSRegulation/Home.asp](http://www2.worksafebc.com/Publications/OHSRegulation/Home.asp).

Refer students to the "Search the Regulation" activity found on the Student Resource Page ([www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students)), and have them complete the questions individually or in small groups.

An answer key for the worksheet is provided at the end of this module.

As an alternative approach, students can create quizzes for each other, based on workplace areas of interest.

Debrief this activity by pointing out that the Regulation is only the starting point for health and safety. Every piece of equipment has its own safety guidelines, and every workplace has safe work procedures for work tasks. It's up to employers to train workers on safe work procedures, and it's up to workers to follow those procedures.

## Know Your PPE



Discuss categories of personal protective equipment, or PPE, that might be used in a variety of workplaces. Categories could include

- Eye and face protection (e.g., safety glasses, face shields)
- Hearing protection
- Head protection (e.g., hard hat)
- Hand protection (e.g., safety gloves)
- Foot protection (e.g., steel-toed boots)
- Breathing protection (e.g., dust mask, respirator)
- Visibility enhancement (e.g., visibility vest, wearable lights)

Ask students to suggest one job that might require each type of PPE.

Remind students that, while most PPE is supplied by the employer (as required by the Regulation), it is their responsibility to provide their own basic work clothing including

- Footwear (including non-slip or steel-toed, if required for the job)
- Clothing for the elements (hot, cold, sun protection)
- Work gloves
- Hard hat/head protection

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However, they should feel free to ask their employer where best to purchase such items, and what brands or varieties are best for the work. In addition, some employers may have items available to borrow or purchase at cost (particularly work gloves and hard hats).

**Optional: Guest speaker**

Have the guest (WorkSafeBC or local employer) demonstrate the PPE she or he brings in. The demonstration should include an explanation of the purpose of the equipment and its proper use.

**Assessment**

Have students create a model, poster, or informational profile about one piece of PPE that relates to a job of their choice. Students can use the various resources on the Student Resource Page, as well as the WorkSafeBC PPE information page ([www2.worksafebc.com/topics/PPE/home.asp](http://www2.worksafebc.com/topics/PPE/home.asp)) for their research. Their work should highlight

- Purpose of the PPE (i.e., injury it is designed to prevent)
- How to wear/use, clean, and store it
- Any Regulations for use

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## Summative Assessment

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Have students read the *Be a Survivor* pamphlet. Ask them to select three pieces of information from the pamphlet that they feel are most relevant to them and their own current or future working situations. Have them write a brief paragraph or two about why they think these are the most important and relevant facts to highlight. Alternatively, students may choose to create an oral or multimedia presentation to communicate their findings.

Provide an opportunity for students to share their work with each other for teacher and/or peer assessment (using criteria such as those outlined in the assessment tool provided at the end of this module).

## Search the Regulations – Answer Key

Correct answers are in red.

Question	Regulation #
<p>1. If you believe a work procedure or tool to be unsafe, what must you do?</p> <p>a. refuse to do the procedure or use the tool            b. communicate your concerns with your supervisor  <b>c. both a. AND b.</b>            d. either a. OR b.</p>	3.12 (3)
<p>2. True or False: Your employer is required to provide you with appropriate safety footwear.  <b>T</b> F</p>	8.2 (1)(b)
<p>3. True or False: Other than regular clothing, work gloves, and safety footwear and headgear, your employer is required to provide you with any appropriate personal protective equipment you need to do your job, at no cost to you.  <b>T</b> F</p>	8.2 (2)
<p>4. What is the maximum noise level for worker exposure?</p> <p><b>a. 85 dBA Lex daily or 140 dBC peak sound level</b>            b. 85 dBA Lex daily or 150 dBC peak sound level            c. 75 dBA Lex daily or 100 dBC peak sound level            d. 75 dBA Lex daily or 85 dBC peak sound level</p>	7.2
<p>5. Although working while fatigued or under the influence is not recommended in any workplace, the Regulation does not have any provisions that specifically prohibit you from working if your ability to work is affected by alcohol, drugs, or other physical impairments.            T <b>F</b></p>	4.19

Question	Regulation #
<p>6. If you travel in a worker transportation vehicle as part of your job, your employer must ensure that</p> <ul style="list-style-type: none"> <li>a. reasonable measures are taken to evaluate road, weather and traffic conditions to ensure the safe transit of the workers</li> <li>b. an inspection of the worker transportation vehicle has been conducted by a qualified person before first use on a work shift</li> <li>c. any defect which might affect the safety of workers is corrected before the vehicle is used</li> <li>d. a. and c. only</li> <li><b>e. a., b., and c.</b></li> </ul>	17.2
<p>7. The maximum height at which you can work without using fall protection is six metres. T F</p>	11.2 (a)
<p>8. What is the minimum age for the designated first aid attendant required at all workplaces?</p> <ul style="list-style-type: none"> <li>a. 15</li> <li><b>b. 16</b></li> <li>c. 18</li> <li>d. 19</li> <li>e. 21</li> </ul>	3.15
<p>9. If you will be required to work alone or in isolation, your employer must develop and implement a written procedure for checking on your well-being. T F</p>	4.21
<p>10. Unless circumstances or space requirements dictate otherwise, how far away from the work area must traffic control persons be positioned?</p> <ul style="list-style-type: none"> <li>a. at least 5 metres</li> <li>b. at least 18 metres</li> <li><b>c. at least 25 metres</b></li> <li>d. at least 30 metres</li> <li>e. at least 45 metres</li> </ul>	18.8

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## Hazard Recognition – Answer Key

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Students' answers to the hazard recognition images may include the following.



### Warehouse worker

#### Hazards

- Worker is reaching too high to lift box
- Worker has leg on second rung of ladder and is in an unstable position – could fall off ladder
- Box could be too heavy to lift
- Box could fall onto worker
- Forklift is behind worker – another worker may start operating the forklift

#### Prevention

- Don't stand on the top two rungs of ladder
- Ensure ladder is in correct and secure position
- Use proper lifting techniques
- Ensure forklift driver is aware of worker on ladder
- Ask for assistance with heavy boxes, if required



### Cashier

#### Hazards

- Worker is reaching over stacked items and overextending arms – could strain arms, shoulder, or back from awkward lifting
- Item may be too heavy for lifting
- Items not stacked properly
- Items could fall on worker if knocked over
- If glass items broken, worker could get cut

#### Prevention

- Do not overextend or twist body
- Use proper lifting techniques
- Ask for assistance in lifting heavy items
- Use proper posture while working

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## Deep fryer

### Hazards

- Worker is not paying attention to task
- Kitchen items are too close to deep fryer – could fall into fryer causing hot oil to splash up
- Second worker could knock over hot items
- Worker's hair not tied back, could get in the way

### Prevention

- Pay attention to task
- Remove items or utensils that are too close to deep fryer
- Tie back hair
- Ensure safe work procedures are followed for deep frying



## Construction worker

### Hazards

- Wood items are stacked in unstable position – items or ladders could fall onto worker
- Awkward lifting and handling of wood items by worker – worker could get back injury from awkward lifting
- Extension cord lies across the work area – tripping hazard
- Worker not wearing safety gloves – hand could get cuts or slivers
- Messy/cluttered area

### Prevention

- Wear work gloves
- Use proper lifting techniques
- Ensure path or walkway is clear
- Move ladders and extension cord away from work area
- Ask for assistance if required





## Cook assistant

### Hazards

- Grill could be hot
- Cleaning sponge is small, worker's fingers could get burned
- Flammable aerosol can could explode from heat
- Worker's fingers could get burned from hot grill or oil
- Worker's long sleeve could get hot oil on it

### Prevention

- Remove aerosol can from hot area
- Wear proper clothing (no wide sleeves or sleeves too long)
- Use proper cleaning tools
- Use safe work procedures for cleaning grill



## Kitchen worker

### Hazards

- Worker cannot see where she is going
- Boxes lying on floor – slipping/tripping hazard
- Box could be too heavy for worker
- Worker could bump into another worker
- Worker could fall onto hot stove top

### Prevention

- Remove debris/boxes lying on floor
- Do not walk without seeing pathway
- Be aware of other workers working around you
- Get assistance with carrying box
- Use handcart to move box
- Ensure nothing is in pathway
- Use proper lifting/carrying techniques



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## Woodworker

### Hazards

- Hand is too close to blade
- Extra wood pieces in the way of work
- Broom leaning on work table, could fall
- Extension cord behind worker – tripping hazard
- General mess in shop
- No guard on saw
- Loose jewellery and clothing on worker – could get caught in machinery

### Prevention

- Keep fingers at least 8 cm from saw blade
- Ensure there is no clutter around saw area
- Move broom away from table saw
- Have guard on saw
- Ensure safe work procedures are followed for working on saw
- Clean up work area
- Do not wear loose jewellery or clothing while working on saw



## Supermarket worker

### Hazards

- Lifting heavy box in awkward position – could cause back strain injury
- Lifting box with box cutter in hand – potential for cutting
- Turning while lifting – could strain back
- Improper footwear – slipping/tripping hazard
- Repetitive lifting of boxes
- Cart could move throwing worker off balance

### Prevention

- Use proper lifting techniques
- Do not turn body while lifting
- Do not lift boxes with box cutter in hand
- Wear proper footwear
- Position cart so it can't move
- Get assistance if boxes are too heavy





## Mechanic

### Hazards

- Worker not wearing face mask or safety glasses – potential eye or face injury from flying debris or dust
- Distracted by other person
- Other person sitting on unstable stack of tires, could fall onto worker

### Prevention

- Wear proper personal protective equipment (dust mask, safety eyewear)
- Move tires away from car
- Do not sit on stack of tires
- Clean up work area
- Pay attention to task



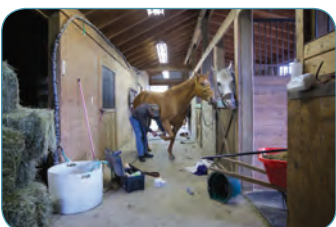
## Server and busperson

### Hazards

- Potential collision (resulting in cuts from broken glass or burns from hot liquid)
- Server holding tray in unstable position (over shoulder)
- Server and busperson cannot see each other coming around corner, potential collision
- Busperson not paying attention to potential oncoming traffic
- Server could lose balance

### Prevention

- Both workers need to pay attention for oncoming traffic
- Mirror could be installed so that workers can see oncoming traffic
- Use proper technique for carrying tray
- Use both hands for carrying tray
- Proceed cautiously around corner



## Farm animal handling

### Hazards

- The hay is stored improperly and represents a fire hazard
- Tools and bucket are potential tripping hazards
- Horse is not secured

- 
- The worker's body position is an ergonomic hazard
  - Syringes lying on floor are both a biohazard and a puncture hazard
  - Potential biological hazards when working around animals or animal waste
  - Worker appears to be working alone

### **Prevention**

- Keep work area uncluttered and free of tripping hazards
- Store hay and other flammable materials safely
- Dispose of biological waste safely
- This type of work would be better done with a second worker restraining the animal
- Follow ergonomic practices to avoid MSIs
- Wear PPE and follow proper procedures to avoid biological hazard when working with animals
- Make sure there's a communication plan for workers working alone

## **Landscaping**

### **Hazards**

- Wearing sandals could result in a severe injury when using equipment such as a lawnmower
- Safety cones not in use
- Improper and unsafe ladder use, could result in fall
- Lawnmower controls are hidden and cannot be accessed quickly in the case of an emergency
- Tools and equipment not secured, creating a tripping hazard
- One worker texting while in a hazardous area

### **Prevention**

- Wear proper footwear and clothing for the job
- Keep workspace clear and uncluttered
- Pay attention at all time while on the job, particularly around hazards such as machinery or falling hazards
- Use all equipment as directed – do not use tools or equipment for purposes they were not designed for





## Spa

### Hazards

- Potential chemical hazards to both worker and customer
- Coffee cup is near chemical hazards
- Workspace is very cluttered, potential tripping hazard
- Liquids stored in a way that spills are likely to occur
- Potentially flammable liquids are too close to electrical equipment

### Prevention

- Wear/use PPE such as gloves, mask/respiratory protection, and eye protection when working around chemicals
- Keep food and drinking water away from chemical hazards
- Keep workspace clear and uncluttered
- Handle and store liquids properly



## Forklift

### Hazards

- Workers not paying attention to moving equipment
- Not all workers are wearing high-visibility apparel
- Forklift is operating outside designated area; markings on floor are unclear
- Forklift operator is not wearing seatbelt, and has parts of his body outside the forklift
- Cup of coffee on forklift is a spill/slipping hazard
- Load on forklift is trailing debris that could snag on equipment or cause other workers to trip

### Prevention

- Wear high visibility clothing when working in or around moving equipment
- Pay attention at all times when working in or around moving equipment
- Follow all safe work procedures for hazardous equipment such as forklifts
- Keep equipment properly maintained and clutter-free

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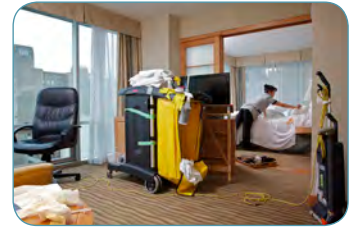
## Room attendant

### Hazards

- Poorly maintained equipment (e.g., broken wheel, taped together cart, taped electrical cord) is a potential hazard
- Cleaning supplies improperly labelled and stored
- Potential biohazards from blood on sheets and syringe on table
- Over-reaching could cause a strain
- Tripping hazards from electrical cord across doorway and food tray on floor

### Prevention

- Keep all equipment and tools in proper working condition
- Ensure all cleaning products and chemicals are properly labeled
- Follow ergonomic guidelines for work that requires bending or lifting
- Follow proper procedures for handling biohazards such as blood and syringes
- Keep workspaces and walkways clear and uncluttered



## Traffic

### Hazards

- Traffic control equipment (cones, signage, etc.) not set up properly
- Workers are out of sightlines, behind vehicles, and do not appear to be paying attention to their jobs
- One worker is texting/distracted, and is not wearing any high visibility clothing

### Prevention

- Pay attention at all time when working around any moving equipment, including motor vehicles
- Do not text or engage in other distracted behaviour when working in or around motor vehicles
- Wear high visibility clothing when working in or around motor vehicles



## Assessment Tool

To what extent does the student's presentation:	Student Rating	Teacher Rating	Comments
highlight key worker safety issues			
provide a clear rationale for the information chosen to present			
present information in an engaging manner			
present information in a manner that is appropriate for the audience and topic			
Additional information			

# Module 3: WorkSafe for Life

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## Key Messages to Students

- ▶ Workplace safety skills and knowledge can apply to other areas of life, and safety skills learned in other areas can apply to workplace settings.

## Overview

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This module provides opportunities for students to think about safety in a broader context, connecting workplace safety skills and attitudes to school, home, and community settings.

Many students may, even after learning about workplace hazards in the previous modules, have a hard time seeing the personal relevance of workplace safety. The activities in this module are designed to help students see that safety practices apply to many areas of their lives.

## Curriculum Connections

The activities in this module can help students achieve prescribed learning outcomes in the following provincial courses:

- Planning 10
- Graduation Transitions 10–12

Additionally, the activities in this module can be used to support learning in the following courses, depending on the options selected by students (in the Student Choice Project):

- Dance 10, 11, and 12
- Drama 10, 11, and 12
- Home Economics 10
- Home Economics 11 and 12 courses (including Foods, Textiles, and Cafeteria Training)
- Music 10, 11, and 12
- Physical Education 10
- Technology Education 10
- Technology Education 11 and 12 courses (including Automotive Technology, Carpentry and Joinery, Drafting and Design, Electronics, Industrial Design, and Metal Fabrication and Machining)

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### Did you know...

Bullying and harassment in the workplace are covered by WorkSafeBC regulations.

For more information on what constitutes workplace harassment, as well as what to do about it when it occurs, visit [www2.worksafebc.com/Topics/BullyingAndHarassment/Home.asp](http://www2.worksafebc.com/Topics/BullyingAndHarassment/Home.asp).

- Tourism 12
- Visual Arts 10, 11, and 12

(See Appendix A for more detailed curriculum information.)

### Student Content

(All student content found at [www2.WorkSafe.com/students](http://www2.WorkSafe.com/students))

- Employability Skills Self-Assessment (worksheet – fillable PDF)
- Other WorkSafe print, online, and video resources (depending on students' project choices) – addressing topics such as
  - MSIs
  - exposure to hazardous materials
  - exposure to environmental hazards
  - noise hazards and hearing conservation
  - fatigue
  - workplace violence
  - other workplace safety issues (e.g., retail, automotive, film industry, tree planting, driving safety, FOODSAFE, hearing conservation)



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## Activities

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### Work Preparedness



Read the following statement aloud: “I believe that I am prepared with the skills and knowledge I need for the workforce.”

Have students position themselves on one side of the room if they agree with the statement, and on the other if they disagree. Student may also choose to position themselves in the middle if they partially agree. Have them discuss why they responded the way they did with others who responded similarly.

### Employability Skills Self-Assessment



Have students access the Employability Skills Self-Assessment resource and complete the exercise individually.

Debrief with students individually or in groups, and discuss ways in which workplace safety relates to various employability skills. For example:

- Listening and reading skills are important for following safety instructions, rules, and guidelines
- Teamwork and leadership are important for safety within a workplace environment

Discuss ways in which they can develop those areas where they feel they are weakest. For example:

- School classes
- Extra-curricular teams, clubs, and other activities
- Out-of-school classes and activities
- Work experience

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## Assessment

Have students record information from the employability skills self-assessment in their education and career plans. Look for evidence that they are able to

- Make connections between safety and other employability skills
- Articulate plans for acquiring or improving selected employability skills

## Student Choice Project



In this project, students will research and create activities (e.g., informational videos, presentations, workshops) to orient others to specific safety concepts in school, home, and community contexts. Students can work independently or in groups; if students will be working in groups, facilitate group formation based on similar interests.

Although students can choose any topic they wish, they may wish to focus on areas that correspond to classes they are currently taking or planning to take in the future, such as:

- Technology education – safe tool use
- Foods (home economics) – knife safety, stove and hot surface safety
- Music – hearing loss prevention
- Visual arts – safe use of materials and tools
- Dance, drama, physical education – safe movement

Students can also choose to highlight safety issues in relation to other school or out-of-school topics and activities such as:

- Sports and physical activities
- Ergonomics for computer use at school and home
- Home use of pesticides and herbicides
- Home repair and renovation projects
- Bullying and harassment
- Impairments and distractions in a range of activities (e.g., fatigue, cell phone use, drug or alcohol impairment)

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Suggest formats students can use for their projects. For example, they may choose to

- Create an informational video, podcast, website, slide show, poster, or drama
- Stage an event such as a flashmob or mock incident
- Organize and lead a workshop for other high school students
- Organize and lead a safety event for elementary school students
- Create a science fair entry

To begin their work, students should review the various informational resources related to their topic found at the Student Resource Page ([www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students)).

Additional resources found online that could spark ideas for students' projects include:

- *Joe Who*, a student-created drama that highlights the impact of a workplace injury
- Student Safety Video Contest winners

### **Assessment**

Have students present their projects to each other for teacher and peer assessment. Assessment should focus on the extent to which the project

- Communicates accurate information
- Provides practical advice for health, safety, and injury prevention
- Is presented in an engaging fashion
- Is presented in a format that is appropriate for the content and audience
- Makes specific connections between workplace safety and safety in non-work settings



# Appendix A: Curriculum Connections

Depending on the activities selected, this teacher guide can be used to address the following prescribed learning outcomes for the following B.C. curricula (current as of September 2013).

## Planning 10

Prescribed Learning Outcomes	Suggested Achievement Indicators
<p>B4 demonstrate an understanding of employability skills (e.g., communication, problem solving, teamwork)</p>	<ul style="list-style-type: none"> <li>• provide specific examples of employability skills, including               <ul style="list-style-type: none"> <li>– communication (e.g., written skills, oral skills, numeracy, technological literacy, accessing and managing information)</li> <li>– problem solving</li> <li>– teamwork (e.g., co-operation, respect, understanding of group dynamics, constructive contributions)</li> <li>– personal responsibility (e.g., time management, positive attitude, commitment, continuous skill development)</li> </ul> </li> <li>• explain the importance of developing a variety of employability skills for job seeking, job keeping, and career advancement</li> <li>• identify employability skills they already have and those they want to develop further, and describe personal strategies for developing the identified skills</li> </ul>
<p>B6 demonstrate an awareness of the legal rights and responsibilities of employers and employees</p>	<ul style="list-style-type: none"> <li>• distinguish among the legislation governing employment (e.g., <i>Employment Standards Act</i>, <i>Human Rights Act</i>, <i>Workers Compensation Act</i>, <i>Labour Relations Code</i>)</li> <li>• accurately identify where information related to the legal rights and responsibilities of employers and employees can be found (e.g., employment centres, school or community career centres, WorkSafeBC, public library)</li> </ul>
<p>B7 analyse practices associated with work-related risk reduction and injury prevention (e.g., safety training, hazard recognition, risk management, communication)</p>	<ul style="list-style-type: none"> <li>• create a list of factors that contribute to making workers and workplaces physically and emotionally safe (e.g., safety training programs, team building, harassment policies)</li> <li>• describe and discuss standard guidelines and procedures for reducing risk and injury in the workplace (e.g., following established safety guidelines such as those set out by WorkSafeBC, knowing own abilities and limits, using safety and personal protective equipment, knowing where to go to address a problem)</li> <li>• list and discuss primary causes of injury to young workers (e.g., inability to recognize and respond appropriately to hazards, lack of training)</li> <li>• propose strategies to minimize workplace hazards</li> <li>• apply hazard recognition, risk management, and effective communication skills in simulated workplace situations</li> </ul>

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## Graduation Transitions

Prescribed Learning Outcomes	Suggested Achievement Indicators
<ul style="list-style-type: none"><li>demonstrate the skills required to work effectively and safely with others and to succeed as individual and collaborative workers, by<ul style="list-style-type: none"><li>describing the duties performed, the connections between the experience and employability/life skills, and the benefit to the community and to the student</li></ul></li></ul>	<ul style="list-style-type: none"><li>describe procedures, tools, and/or equipment used</li><li>identify fundamental skills developed (e.g., communicating, teamwork, managing information, thinking, problem solving, using numbers)</li><li>identify self-management skills developed (e.g., demonstrating positive attitudes and behaviours; being responsible, adaptable, respectful)</li><li>explain how the skills can be transferred to other situations</li><li>describe the significance of their contribution</li></ul>

## Secondary School Apprenticeship (SSA)

Prescribed Learning Outcomes	Suggested Achievement Indicators
<ul style="list-style-type: none"><li>demonstrate knowledge of workplace health and safety rights and responsibilities, including basic workplace incident and accident response procedures and protocols</li></ul>	<ul style="list-style-type: none"><li>identify and describe workplace health and safety rights and responsibilities of employers, supervisors, and workers</li><li>identify key issues related to supervision, orientation, and training related to workplace health and safety</li><li>list or discuss avenues of recourse for health and safety rights violations and for failures to meet responsibility</li></ul>

## Ministry-Authorized Work Experience 12

Prescribed Learning Outcomes	Suggested Achievement Indicators
<ul style="list-style-type: none"> <li>demonstrate knowledge of workplace health and safety rights and responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>identify and describe workplace health and safety rights and responsibilities of employers, supervisors, and workers</li> <li>identify key issues related to supervision, orientation, and training related to workplace health and safety</li> <li>provide examples from work experience placements where workers may need to exercise their workplace health and safety rights, and indicate how they could meet their workplace safety responsibilities</li> <li>list or discuss avenues of recourse for health and safety rights violations and for failures to meet responsibility</li> </ul>
<ul style="list-style-type: none"> <li>analyze hazards or potential hazards in an occupation or industry sector related to a work experience placement (e.g., restaurant industry, construction industry)</li> </ul>	<ul style="list-style-type: none"> <li>research and identify the primary causes of injuries and the main hazards in the occupation or industry</li> <li>conduct interviews with employers or supervisors about potential hazards and injuries in the occupation or industry</li> <li>propose strategies to minimize workplace hazards and prevent injuries in the occupation or industry</li> </ul>
<ul style="list-style-type: none"> <li>identify how a workplace problem can be analyzed/solved</li> </ul>	<ul style="list-style-type: none"> <li>describe a problem experienced or observed at the workplace</li> <li>explain how the problem was identified and with whom it was discussed</li> <li>explain the cause of the problem and each step used to resolve it</li> <li>compare the problem-solving model used at the workplace to ones used to resolve school-based problems</li> </ul>

In addition, the projects chosen by students in Module 3 may address prescribed learning outcomes related to safety in the following curricula:

- Automotive Service Technician Level 1
- Carpentry Level I
- Dance 10, 11, and 12
- Drama 10, 11, and 12
- Home Economics 10, 11, and 12: Textiles
- Home Economics 11 and 12: Cafeteria Training
- Music 10, 11, and 12
- Physical Education 10, 11, and 12
- Professional Cook 1
- Technology Education 10

- 
- Technology Education 11 and 12 courses (including Automotive Technology, Carpentry and Joinery, Drafting and Design, Electronics, Industrial Design, and Metal Fabrication and Machining)
  - Tourism 12
  - Visual Arts 10, 11, and 12

For a complete listing of the most up-to-date curriculum requirements, visit the B.C. Ministry of Education's website: [www.bced.gov.bc.ca/irp/welcome.php](http://www.bced.gov.bc.ca/irp/welcome.php).



# Appendix B: Student Resources

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The following student resources, provided here for ease of reference, are also contained on the Student Resource Page: [www2.WorkSafeBC.com/students](http://www2.WorkSafeBC.com/students).

# You and the Working World

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Name: \_\_\_\_\_

1. Have you ever had a paid job or work experience placement with an employer?

- Yes  
 No

(If you answered "yes," please go to question 2. If you answered "no," please jump directly to question 9.)

2. How would you describe the training or orientation you received when you started the job?

(Choose one response only.)

- Orientation was extensive, thorough, and formal (i.e., an organized session lasting an hour or longer).  
 Orientation was thorough and clear, but informal (i.e., things explained as typical work situations arose).  
 Orientation and training were haphazard (i.e., only some things were explained).  
 I do not remember receiving any orientation or training.

3. Which of the following most closely describes your opinions about your orientation and training?

(Choose one response only.)

- Very good coverage of what I needed to know: material all seemed worthwhile and necessary  
 Felt like "overkill": too much to absorb and not all of it really necessary  
 Not very thorough: left out lots of things I had to discover later  
 Somewhat confusing: left me feeling overwhelmed by the demands of the situation  
 Not much to it, but no matter, as the job requirements seemed self-evident  
 It was completely inadequate or non-existent

4. Who provided most of your orientation and training? (Choose one response only.)

- The person to whom I reported (i.e., boss or supervisor)  
 An experienced co-worker  
 No one specific person  
 I received no meaningful orientation or training

5. Which of the following topics were covered as part of your orientation and training? (Choose all that apply.)

- Terms and conditions of employment  
 Location of (access to) facilities, equipment, and supplies  
 Person(s) to speak to about questions or concerns  
 Safety hazards of the job  
 Workplace health and safety rules and procedures, and reasons for those rules and procedures  
 Emergency procedures and first aid facilities  
 None of the above

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6. How much opportunity for interaction did you have with your supervisor or employer during your day-to-day work? (Choose one response only.)

- Constant (we worked together, most of the time)
- Frequent (at least six or seven times a day, usually)
- Occasional (three or four times a day, usually)
- Very little (twice a day, or less)

7. How easy was it for you to approach your supervisor with questions and concerns related to your work? (Choose one response only.)

- Very easy (she/he always took time to speak with me and would respond to anything I raised)
- Fairly easy (I might have to wait to raise questions or receive answers to questions I asked, but I never felt uncomfortable raising work issues)
- Sometimes challenging (I sometimes felt unwilling to say anything that might make me seem stupid, uncooperative, or difficult)
- Quite difficult (he/she was often not around)

8. Did you ever witness or experience a situation where someone was or might have been seriously hurt at work?

- No
- Yes (Briefly describe what happened.)

9. What types of work might you be interested in for your next/first job? (Please give only your first, most likely option.)

10. What kinds of safety risks do you think there might be in that job? (Can you realistically imagine how someone might get hurt doing that job?)

**PRINT**

# Workplace Rights and Responsibilities

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Workers have the right to

- Information, instruction, and training about safe work procedures and how to recognize hazards on the job
- Supervision to make sure they work without undue risk
- Equipment and safety gear required to do the job safely (workers are responsible for providing their own clothing to protect themselves against the natural elements, general purpose work gloves, safety footwear, and safety headgear)
- Refuse to perform tasks and work in conditions they think are unsafe, without being fired or disciplined for refusing
- Participate in workplace health and safety committees and activities

As a worker, you are responsible for working without undue risk to yourself or others. To keep safe on the job,

- Don't assume you can do something you've never done before. Ask your supervisor to show you how to do it safely before you begin work. Ask your employer for safety training.
- Use all safety gear and protective clothing when and where required.
- Always follow safe work procedures and encourage your co-workers to do the same.
- Immediately correct unsafe conditions or report them right away to your supervisor.
- Know how to handle any hazardous materials or chemicals you use on the job.
- If you have any doubts about your safety, talk to your supervisor.
- Tell your supervisor of any physical or mental conditions that may make you unable to work safely.

## Employers' Health and Safety Responsibilities

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One of the most important responsibilities of the employer is to ensure that workers are adequately trained in safe work procedures and properly supervised when carrying out their duties. Under the *Workers Compensation Act*, the employer has the legal responsibility to ensure that every worker receives adequate training. The employer must also follow up to see that the supervisor is carrying out all required training.

Employers are responsible for ensuring that all workers can do their jobs without unnecessary risk. Young and new workers in particular are often inexperienced and unable to recognize hazards. Many won't ask questions about workplace safety for fear of looking incompetent or simply because they don't know what to ask. The procedures employers have in place for workplace health and safety should take account of these and other facts about young and new workers.

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### **Employers should**

- Know and comply with workplace health and safety regulations that apply to their workplaces.
- Create a workplace culture that encourages young and new workers to ask questions about any health and safety concerns they may have.
- Involve supervisors and experienced workers in identifying potential health and safety problems and developing prevention programs to eliminate these hazards.
- Give supervisors and young and new workers all the training they need to do their jobs and to recognize hazards.
- Provide the required safety gear and protective clothing. (Workers are responsible for providing their own clothing to protect them against the natural elements, general purpose work gloves, safety footwear, and safety headgear.)
- Evaluate equipment that young workers might be required to operate to ensure that it is safe for their use. Make sure workers know how to use any equipment safely.
- Make sure that young workers are appropriately supervised to prevent injuries and exposure to hazardous materials.
- Create an environment where “safe” behaviour is rewarded and recognized in the workplace.
- Provide supervisors with knowledge of how to train new and young workers. Check back with supervisors frequently to ensure they are following up with new staff answering questions, and observing if the work is being done safely.

Specific requirements for new and young workers state that employers should provide orientation and training that includes

- The name and contact information for the young or new worker’s supervisor
- The employer’s and young or new worker’s rights and responsibilities under the *Workers Compensation Act*
- Workplace health and safety rules
- Specific hazards to which the young or new worker may be exposed, including risks from robbery, assault, or confrontation
- Procedures for working alone or in isolation
- How to deal with violence in the workplace
- Personal protective equipment (PPE)
- Location of first aid facilities
- Emergency procedures, including how to access first aid and to report injuries
- Instruction and demonstration of the young or new worker’s work tasks
- The employer’s health and safety program, where applicable
- WHMIS information requirements, where applicable
- Contact information for the occupational health and safety committee or the worker health and safety representative, where applicable to the workplace

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## Refusing Unsafe Work

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According to the Occupational Health and Safety Regulation

1. A person must not carry out or cause to be carried out any work process or operate or cause to be operated any tool, appliance or equipment if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person.
2. A worker who refuses to carry out a work process or operate a tool, appliance or equipment pursuant to subsection (1) must immediately report the circumstances of the unsafe condition to his or her supervisor or employer.
3. A supervisor or employer receiving a report made under subsection (2) must immediately investigate the matter and
  - Ensure that any unsafe condition is remedied without delay, or
  - If in his or her opinion the report is not valid, must so inform the person who made the report.
4. If the procedure under the Regulation does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, the supervisor or employer must investigate the matter in the presence of the worker who made the report and in the presence of:
  - A worker member of the occupational health and safety committee,
  - A worker who is selected by a trade union representing the worker, or
  - If there is no occupational health and safety committee or the worker is not represented by a trade union, any other reasonably available worker selected by the worker.
5. If the investigator under the Regulation does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, both the supervisor or the employer and the worker must immediately notify an officer, who must investigate the matter without undue delay and issue whatever orders are deemed necessary.

**You have the right to refuse work** if you (a) have reasonable cause and (b) follow all procedures in the Regulation. If you refuse to do work you consider unsafe, you should consider the following steps

1. You must discuss the situation with your supervisor or employer.
2. If the matter is not resolved, then a worker representative must be involved.
3. If the matter is still unresolved, a WorkSafeBC field officer is called in by both worker and management representatives.
4. While the matter is being resolved, you will be temporarily reassigned to another job.

If you feel you must refuse work, be sure to follow the procedures in the regulations and any other policies that the employer may have. **Don't just stop work and go home!** If you don't follow the procedures, you may be subject to disciplinary action by your employer.

# Search the Regulation

Use either the search function or the index of the Occupational Health and Safety Regulation to find the answer to each question. You can access the Regulation in one of two ways:

- online at [www2.worksafebc.com/publications/OHSRegulation/home.asp](http://www2.worksafebc.com/publications/OHSRegulation/home.asp)
- via mobile app for Apple and Android, downloadable at [www2.worksafebc.com/Publications/OHSRegulation/miscellaneous.asp?reportID=36199#mobileApp](http://www2.worksafebc.com/Publications/OHSRegulation/miscellaneous.asp?reportID=36199#mobileApp)

For each question, you must also note the regulation number where you found the answer.

		Regulation #
1	<p>If you believe a work procedure or tool to be unsafe, what must you do?</p> <p><input type="checkbox"/> a. refuse to do the procedure or use the tool</p> <p><input type="checkbox"/> b. communicate your concerns with your supervisor</p> <p><input type="checkbox"/> c. both a. AND b.</p> <p><input type="checkbox"/> d. either a. OR b.</p>	
2	<p>True or False: Your employer is required to provide you with appropriate safety footwear.</p> <p><input type="checkbox"/> T   <input type="checkbox"/> F</p>	
3	<p>True or False: Other than regular clothing, work gloves, and safety footwear and headgear, your employer is required to provide you with any appropriate personal protective equipment you need to do your job, at no cost to you.</p> <p><input type="checkbox"/> T   <input type="checkbox"/> F</p>	
4	<p>What is the maximum noise level for worker exposure?</p> <p><input type="checkbox"/> a. 85 dBA Lex daily or 140 dBC peak sound level</p> <p><input type="checkbox"/> b. 85 dBA Lex daily or 150 dBC peak sound level</p> <p><input type="checkbox"/> c. 75 dBA Lex daily or 100 dBC peak sound level</p> <p><input type="checkbox"/> d. 75 dBA Lex daily or 85 dBC peak sound level</p>	
5	<p>Although working while fatigued or under the influence is not recommended in any workplace, the Regulation does not have any provisions that specifically prohibit you from working if your ability to work is affected by alcohol, drugs, or other physical impairments.</p> <p><input type="checkbox"/> T   <input type="checkbox"/> F</p>	

		Regulation #
6	<p>If you travel in a worker transportation vehicle as part of your job, your employer must ensure that</p> <p><input type="checkbox"/> a. reasonable measures are taken to evaluate road, weather and traffic conditions to ensure the safe transit of the workers</p> <p><input type="checkbox"/> b. an inspection of the worker transportation vehicle has been conducted by a qualified person before first use on a work shift</p> <p><input type="checkbox"/> c. any defect which might affect the safety of workers is corrected before the vehicle is used</p> <p><input type="checkbox"/> d. a. and c. only</p> <p><input type="checkbox"/> e. a., b., and c.</p>	
7	<p>The maximum height at which you can work without using fall protection is six metres.</p> <p><input type="checkbox"/> T   <input type="checkbox"/> F</p>	
8	<p>What is the minimum age for the designated first aid attendant required at all workplaces?</p> <p><input type="checkbox"/> a. 15</p> <p><input type="checkbox"/> b. 16</p> <p><input type="checkbox"/> c. 18</p> <p><input type="checkbox"/> d. 19</p> <p><input type="checkbox"/> e. 21</p>	
9	<p>If you will be required to work alone or in isolation, your employer must develop and implement a written procedure for checking on your well-being.</p> <p><input type="checkbox"/> T   <input type="checkbox"/> F</p>	
10	<p>Unless circumstances or space requirements dictate otherwise, how far away from the work area must traffic control persons be positioned?</p> <p><input type="checkbox"/> a. at least 5 metres</p> <p><input type="checkbox"/> b. at least 18 metres</p> <p><input type="checkbox"/> c. at least 25 metres</p> <p><input type="checkbox"/> d. at least 30 metres</p> <p><input type="checkbox"/> e. at least 50 metres</p>	

**PRINT**



# Hazard Recognition

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## Warehouse worker

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Student WorkSafe: Hazard Recognition – Warehouse worker

1

# Hazard Recognition

## Cashier



# Hazard Recognition

## Deep fryer



Student WorkSafe: Hazard Recognition – Deep fryer

# Hazard Recognition

## Construction worker



Student WorkSafe: Hazard Recognition – Construction worker

1

# Hazard Recognition

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## Cook assistant

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# Hazard Recognition

## Kitchen worker



Student WorkSafe: Hazard Recognition – Kitchen worker

# Hazard Recognition

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## Woodworker

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Student WorkSafe: Hazard Recognition – Woodworker

1

# Hazard Recognition

## Supermarket worker



Student WorkSafe: Hazard Recognition – Supermarket worker

1



# Hazard Recognition

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## Mechanic

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# Hazard Recognition

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## Server and busperson

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# Hazard Recognition

## Farm animal handling



# Hazard Recognition

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## Landscaping

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# Hazard Recognition

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## Spa

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# Hazard Recognition

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## Forklift

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# Hazard Recognition

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## Room attendant

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# Hazard Recognition

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## Traffic

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# Musculoskeletal Injuries (MSIs)

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Sprains and strains (known as musculoskeletal injuries, or MSIs) are injuries of the muscles, tendons, ligaments, or joints. MSIs are the most common type of work-related injury, accounting for approximately 35 percent of all workplace injuries in B.C.

Muscle strains usually happen when a muscle is stretched too far and is torn. Muscle sprains result when the ligaments that hold bones together are stretched or torn as a result of being twisted.

Strains to the back, neck, shoulder, elbow, wrist, or leg are common and can arise from heavy, awkward, or repetitive work. Muscle strains can occur suddenly or develop over time.

Work practices that involve vibration, repetition, duration, contact stress, working in a cold environment, and awkward or unmoving work postures can all contribute to MSIs.

## Signs and Symptoms of MSIs

Signs and symptoms of MSIs can include

- Pain
- Numbness and tingling
- Swelling
- Redness
- Inability to move a body part normally

Don't ignore any of these signs and symptoms. Recognizing and reporting them as soon as possible – and seeking medical attention right away – can help them from getting worse.

Experiencing some muscular aches is normal when a person first starts a new job (especially one involving physical labour). However, aching that persists and becomes painful is not normal and should be reported.

## Potential Health Effects

If early signs or symptoms of MSI are ignored, they can progress into more serious problems such as tendonitis or bursitis. These conditions can have long-term effects on a person's health, work, recreational options, and other aspects of life. Problems may include persistent pain, pain with movement, or an inability to move limbs normally.

## Is Back Pain Different from a Back Strain?

Yes! Up to 60 percent of young people will have back pain by the time they reach age 18 – that 60 percent will also likely experience back pain again as adults, to the point of missing work or having to visit a doctor. Back strain resulting from heavy lifting or working in an awkward position are also common, but generally affects far fewer young people than back pain does.

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**Fact:** Back pain is not just an “old person’s” complaint.

A 12-year-old has a 10 to 15 percent chance of experiencing back pain. An 18-year-old has a 50 to 60 percent chance of experiencing back pain.

**Fact:** Back pain is one of the biggest reasons for missed work.

Back injuries are the second most common reason for missed work (the common cold is the first).

**Fact:** Eight out of every 10 people will see a doctor for back pain during their life.

This means you have an 80 percent chance of suffering back pain – unless you work smarter.

**Fact:** Workers or not, 70 to 90 percent of all people will have some significant low-back problem during their life.

Two common causes of low-back problems in students are carrying overloaded backpacks and carrying them improperly. It’s estimated that 96 percent of students carry backpacks.

Back pain in teens or adults can result from many things. Some reasons include doing awkward or heavy lifting, being overweight, carrying heavy loads (e.g., a backpack), or spending too much time in front of a computer (especially when the workstation is not well set up to fit the needs of an individual).

### Strains and Sprains to the Shoulder, Arm, Elbow, and Wrist

Teens work in a variety of workplaces, serving food and bussing tables, washing dishes, mopping floors, cashiering, stocking shelves, using tools on a construction site, and planting trees. All of these jobs can be very repetitive, awkward, or strenuous on the shoulders, arms, and wrists.

**Fact:** High-repetition jobs pose a greater risk than low-repetition jobs.

**Fact:** Jobs that are heavy and repetitive are more likely to cause harm than jobs that are not.

### What Causes MSIs?

The hazardous activities that contribute to the risk of MSI are called risk factors. A risk factor is something that may cause or contribute to an injury. The risk factors for MSI include job-related factors, awkward postures, and repetitive movements of long duration.

- Job-related factors – The main risk factors for MSI (especially lower back problems) are the physical demands of a job (e.g., forceful exertions during physical work, handling loads – especially if the load is heavy, awkward, slippery, cold, hot, alive, unbalanced, or wet).
- Awkward postures (e.g., reaching down, reaching overhead, holding the neck in a bent position, sitting at a poorly organized workstation)
- Repetitive movements of long duration (e.g., working at a cash register, using tools, using the computer for prolonged periods of time)

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Other risk factors for MSI may include

- Environmental conditions of the workplace, including lighting, temperature, and air quality
- Personal factors, including personal work style, age, smoking, height, weight, habits, and education

It is important to recognize such factors in the workplace and be aware of what puts you at a high risk of injury. For example, if you must bend awkwardly to lift a heavy object because you are working in a cramped area, you will be at a greater risk of MSI than someone who uses a mechanical lifting device or has enough room to use safe lifting procedures.

### Preventing MSIs

While employers have the primary responsibility for protecting the safety and health of their workers, you are also responsible for following safe work practices outlined by your employer.

At work, any work-related injuries and signs or symptoms of MSI must be reported without delay. Don't ignore early signs and symptoms of MSI. Treatment may be required or steps may need to be taken to prevent the injury from getting worse.

If a worker reports an injury that needs medical attention or an unsafe condition that could lead to injury, the employer must investigate. An investigation will help to identify risk factors that contributed to the injury and lead to workplace changes to eliminate or minimize the risk factors.

Some ways to help prevent or control the risk of MSI include the following:

- Limit lifting by hand. Use equipment such as hand carts, trolleys, forklifts, and pallet jacks to help lift and transport products.
- Do not manually lift heavy loads alone – get help.
- Do not overdo it.
- Be aware of being pressured to do something that may cause injury.
- Minimize the distance the load must be moved or carried.
- Avoid manual lifting tasks for items that lie below knee height (instead, use scissor lifts, pallet jacks, or other equipment).
- Avoid manual lifting tasks for items that lie above shoulder height (instead, limit shelf heights, improve storage practice, or be raised up to the load).
- Avoid handling heavy or unbalanced objects while sitting down (e.g., stand so that stronger muscles are used).
- Improve your grip on the load (e.g., fix good handles on containers; add clamps or other devices to improve grip; use gloves).
- Stack items used most frequently at a convenient waist level.
- Use a stool or ladder to access items on shelves. Do not stand on chairs or boxes that might tip over.

- 
- Lighten the load to be lifted (e.g., by separating component parts; by encouraging the employer to purchase smaller and therefore lighter cartons of stock).
  - When going up or down stairs, use handrails, avoid undue speed, and carry only items that do not obstruct vision.
  - Avoid grasping vibrating tools with a hard grip.
  - Use a desk, chair, mouse, etc. that is well designed and appropriate to the task.
  - Reduce the total time spent pushing or pulling, or break the total time into smaller blocks of time doing that task.
  - Use proper lifting techniques when performing manual lifts to minimize the risk of injuring the back. Keep in mind, however, that a heavy load can cause an injury even with perfect technique.
  - To avoid repetitive strain injuries, vary your work practices so that you're not doing the same motion over and over for hours at a time. Trade off duties with a co-worker. Sit or stand with proper posture.
  - Use ergonomically engineered equipment and practices to avoid unnecessary strains.
  - Recognize the potential for MSIs even in tasks that seem harmless.

### Safe Lifting Techniques

To help prevent injuring your back, use these suggested lifting techniques:

- Warm up your muscles by stretching.
- Size up the load and ask yourself:
  - Is the load an awkward size or shape?
  - Is it too heavy for one person?
  - Do I need help?
  - Do I need a tool to assist me?
- Plan your route: make sure it is free of tripping and slipping hazards.
- Hug the load: keep it close to your body.
- Avoid overreaching.
- Avoid twisting your back: pivot with your feet.
- Squat down; do not bend at the waist.
- Use your legs to do the lifting.
- Use smooth movements.
- Acknowledge your limitations; get help when you need it!
- Use a wide stance.
- Get a good grip; gloves may help.

# Noise Hazards

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One-quarter of all British Columbia's workers are exposed to occupational noise loud enough to damage their hearing. Noise is the most common health hazard in industry. Excessive noise damages tiny sensory cells deep inside the ear. Hearing loss can occur so gradually that you may not realize it is happening. Noise-induced hearing loss is permanent – it can't be cured or improved.

## How Much Is Too Much?

There are maximum limits for noise exposure in the workplace, both for loudness and duration. A simple way to test the noise level is to stand at arm's length from someone and talk to him or her. If you must raise your voice to be heard, the noise around you is probably excessive.

The length of exposure to noise is as critical as the loudness. Continuous noise throughout a shift is more damaging than a few minutes at a time. If your ears ring or sounds seem muffled after the noise stops, your hearing has been affected, at least temporarily.

A noise level greater than 85 decibels (dBA) averaged over eight hours can damage hearing. Work-related noise loud enough to cause damage doesn't just occur in heavy industrial and construction worksites. Potentially harmful noise can also come from a variety of less obvious sources, including

- Kitchen equipment (e.g., blenders)
- Gardening and landscape equipment (e.g., lawn mowers, leaf blowers)
- Musical instruments
- Recorded music or movies
- Public address and amplification systems
- Cleaning equipment (e.g., vacuum cleaners)
- Traffic

## Protection Practices

It's an employer's responsibility to reduce workplace noise. Workplace design is the best way to decrease noise exposure. The source of noise can be housed in sound-muffling enclosures (e.g., enclosures for air compressors or punch presses). If this isn't practical, a worker can be enclosed in a booth that protects her or him from noise. Another way to reduce noise is to install sound-absorbent materials on walls or ceilings near noisy machinery. Workers' exposure to noise can also be reduced by using job rotation to decrease the time they spend in noisy areas.

Until noise can be reduced to safe levels, an employer must provide workers with appropriate hearing protection at no cost. Hearing protection equipment includes earmuffs, earplugs, and earcaps. Different types of protection are required depending on factors such as the amount of noise, the temperature, the need to communicate on the job, and the availability of other personal protective equipment on the job.

# Environmental Exposure: Heat, Sun, and Cold

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## Heat Stress

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Many jobs require work in hot environments, both outdoors and indoors. Working in the heat and doing heavy physical work can affect the body's cooling system. If the body gains heat faster than it is able to cool itself, body temperature rises and heat stress occurs. When working in hot conditions, be adequately prepared to deal with heat stress. It's an employer's responsibility to make sure that workers are trained properly in how to prevent heat stress. Workers should be able to recognize the symptoms of heat stress in themselves and fellow workers.

### Signs and Symptoms of Heat Stress

- Onset of a headache or nausea
- Decreased efficiency, co-ordination, and alertness
- Increased irritability
- Light-headedness or dizziness
- Fainting
- Hands, feet, and ankles swelling, usually one to two days after first exposure

### Health Problems Associated with Heat Stress

If heat stress is not recognized and treated in the early stages, more serious and even fatal conditions may quickly develop, such as heat exhaustion and heat stroke.

### Prevention Practices

Some things you can do to prevent heat stress include the following:

- Learn to recognize the signs and symptoms of heat stress in yourself and co-workers. Avoid working alone.
- Acclimatize your body (gradually expose yourself to heat at work).
- Drink plenty of water (one glass every 20 minutes). Avoid caffeine and alcohol.
- Wear light-coloured, loose-fitting clothing made of breathable fabric (such as cotton).

It is the employer's responsibility to ensure that workers are properly trained in how to prevent heat stress. Some of the things an employer can do to help prevent heat stress are to encourage workers to:

- Take rest breaks in a cool or well-ventilated area. Take more breaks during the hottest part of the day or when doing hard physical work. Allow the body to cool down before beginning again.
- Schedule work to minimize heat exposure. Do the hardest physical work during the coolest part of the day.

**Remember: If there is any doubt about you or your co-worker's condition, get medical advice.**

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## Sun Exposure

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Over the long term, exposure to harmful ultraviolet A (UVA) and ultraviolet B (UVB) rays from the sun can cause sunburn and eventually lead to skin cancer. Workers who are working outdoors without proper protection are at risk of unhealthy exposure to the sun.

### Protection Practices

- Reduce exposure to the sun between 11:00 a.m. and 4:00 p.m. when harmful UVA and UVB radiation is most intense.
- Wear sunglasses with 100 percent UVB protection.
- Wear clothing with long sleeves and long pants.
- Wear a hat.
- Always wear sunscreen. The B.C. Cancer Agency recommends that you use broad-spectrum sunscreen of SPF (sun protection factor) 15 or higher.
- Even on cloudy days, use protection from the sun. The ultraviolet light that causes sunburns can penetrate light cloud cover, fog, and haze.

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## Cold Hazards

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The two primary hazards when working in cold environments are hypothermia and frostbite.

### Hypothermia

One of the major hazards you face when working in the cold is losing your body heat. If your body becomes so cold that it can no longer produce more heat than it loses, you can become a victim of hypothermia. With hypothermia, your vital organs and body systems begin to lose their ability to function.

Hypothermia can happen even on a mild winter's day or on a damp day in fall or spring. Hypothermia often happens so slowly that you don't realize you're in danger. That's why it's important to be able to recognize the early signs and treat hypothermia in its early stages. If no action is taken, the condition may worsen and become moderate or severe hypothermia, and may even result in death. Always stay on the lookout for early signs of hypothermia in both your co-workers and yourself.

Signs of mild hypothermia:

- Bouts of shivering
- Grogginess, poor judgment, muddled thinking, and abnormal behaviour
- Normal breathing and pulse

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The onset of hypothermia may be delayed, so watch for early signs.

If you suspect hypothermia, monitor your condition or that of your co-workers, even after you have left work.

Signs of moderate hypothermia:

- Violent shivering, or shivering has stopped altogether
- Inability to think and pay attention (for example, victim cannot understand what is being said)
- Slow, shallow breathing, slurred speech, or poor body co-ordination (for example, a stumbling gait)
- Slow, weak pulse

Signs of severe hypothermia:

- Shivering stopped
- Unconsciousness
- Little or no breathing
- Weak, irregular, or non-existent pulse
- Dilated (wide open) pupils, so that the victim may appear dead but is still alive

## Frostbite

Frostbite is caused when body tissue – usually on extremities such as fingers, toes, ears, or nose – freezes due to prolonged exposure to cold. Frostbite can result in permanent damage to affected tissues and in extreme cases, may lead to amputation of affected areas.

Someone suffering with frostbite may experience pain or a prickling sensation at first, progressing to numbness. The affected area will likely exhibit pale, waxy-white skin colour. Skin also often becomes hard and numb.

## Preventing hypothermia and frostbite

You can minimize the risk of hypothermia and frostbite by observing the following guidelines:

- Cover as much skin as possible, and wear a warm head covering.
- Wear layered clothing. Layers allow warm air to stay trapped but do not trap perspiration next to the skin.
  - The first layer of clothing should allow the skin to breathe by allowing sweat to escape. Underwear, socks, and glove liners made of polypropylene or knitted silk allow sweat to escape from next to the skin.
  - The second layer of insulating clothing should be one that absorbs perspiration but does not allow heat to escape. Wool is an ideal fabric because it will stay warm even when wet.
  - The third layer of clothing should also trap body heat as well as keep water or dampness out. Quilted coats filled with down or lightweight microfibres that trap heat are ideal, provided they are waterproof.



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- Wear shoes/boots that aren't too tight to allow for proper circulation.
  - Change clothing that gets wet, particularly clothing next to the skin.
  - Drink plenty of non-alcoholic fluids. Doing this will help prevent dehydration and exhaustion, which can lead to hypothermia. Heated drinks can be helpful, but limit your intake of coffee and tea.
  - Pace yourself during vigorous activity. Take regular breaks to get away from the cold environment.
  - When possible, heat the working environment. For instance, heated cabs or shelters help protect construction workers from cold and damp environments.

# Exposure to Mineral and Chemical Hazards

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The following mineral and chemical hazards are discussed here: asbestos, lead, dust, detergents and cleaning products, and pesticides.

## Asbestos

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Asbestos is a fibrous material that was once used in many products because it added strength as well as heat and chemical resistance. Until the late 1970s, more than 3000 products containing asbestos were used in building construction. Although few products containing asbestos are used in construction today, the materials used in older buildings still very likely contain asbestos.

Today the many hazards of asbestos are well known. If you do not take proper precautions when you work around asbestos, you may develop serious health problems years from now.

Asbestos is most hazardous when it is “friable” (dry and easily crumbled or powdered by hand). Once crumbled, asbestos fibres are released into the air. When you inhale those fibres, they get into the deepest regions of your lungs – the alveoli – and stay there forever because asbestos is not easily broken down by the body. The accumulation of asbestos in the lungs could cause lung cancer or other serious diseases many years from now.

It is, however, important to use caution even when working with non-friable materials that contain asbestos (such as vinyl-asbestos floor tile or asbestos cement products), because they have the potential to become friable if they are handled in an aggressive manner (e.g., sanded with a power sander).

Asbestos-containing materials that were once commonly used in residential construction include

- Pipe insulation
- Door gaskets
- Furnace insulation
- Vinyl, asphalt, or rubber floor tiles
- Acoustical tile

### Health Problems Associated with Exposure to Asbestos

The health effects associated with exposure to asbestos are very serious and many are fatal.

- Asbestosis is a lung disease that results from prolonged exposure to asbestos dust. Once the fibres get into the alveoli – the very small part of the lungs – they stay there. Gradually the lungs become scarred and stiff, and this makes it difficult to breathe.
- Lung cancer may be caused by asbestos fibres in the lung. The combination of exposure to asbestos and smoking dramatically increases the likelihood of developing lung cancer.
- Mesothelioma is a rare but very deadly form of cancer that is caused by exposure to asbestos. Mesothelioma affects the lining of the chest or the abdominal cavity.

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## Protection Practices

To control asbestos exposure, you must be aware of the work processes that put you at risk and you must take the proper steps to reduce or eliminate exposure.

Jobs that could expose a worker to asbestos

- Removing asbestos-containing pipe insulation
- Removing asbestos-containing vermiculite insulation
- Cleaning up renovation sites where asbestos-containing building materials have been removed
- Sawing, scraping, or sanding old building materials that contain asbestos (such as old dry-wall that contains asbestos)
- Removing old plumbing fixtures

If you have to do work that could expose you to asbestos, it is your employer's responsibility to make sure you are trained properly on how to protect yourself. It is your responsibility to follow safe work practices that are established by your employer for your protection.

## Lead

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The paint used in older buildings often contained lead. If you have to work in a building or on another type of structure that was built before 1975, you could be exposed to lead when you are removing lead-based paint.

There are two ways that lead can enter your body:

- You can breathe in lead dust or fumes while you are sanding painting
- You can drink or eat food contaminated with lead or transfer lead dust from your skin to your food

Once lead is in your bloodstream, it is carried throughout the body and stored in various body tissues, mostly in your bones. The body can naturally get rid of lead over time; however, if lead enters your body faster than your body can get rid of it, it may build up or accumulate.

### Health Problems Associated with Lead Exposure

A person suffering high lead levels may experience a general feeling of tiredness and weakness, general aches and pains, headaches, loss of weight, abdominal pain, and possible constipation. These and other symptoms of lead exposure may take a long time to develop. As well, workers with similar exposures to lead may experience different symptoms, or the same symptom but at different severity.

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Possible health effects an adult may experience as a result of lead exposure include

- Anemia
- Nerve damage causing muscle weakness
- Kidney damage
- High blood pressure
- Reproductive problems in both men and women

A developing fetus, when the mother is exposed to even fairly low levels of lead, may experience low birth weight and developmental delays. If a woman has been exposed before pregnancy to a significant amount of lead, then during pregnancy the lead may come out of the body tissues where it is stored and enter the blood and the fetus. Lead is also excreted in breast milk.

### Protection Practices

Health problems from lead exposure can be prevented. The solution is to minimize the amount of lead your body absorbs through being breathed in and ingested.

Be aware of the work processes you are doing that increase your risk of being exposed to lead and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much lead.

If there is lead exposure in your workplace, make sure you remove your work clothing and shower before going home! The other members of your family – and especially children and pregnant women – will be exposed if you take lead dust home on your work clothes, footwear, skin, or hair.

## Dust

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Dust can be produced from a whole range of work-related activities including sanding, sawing, paint removal, and sweeping.

Depending on its content, dust can be simply a nuisance, or it can actually cause harm. When dust is in the air you breathe, you inhale it into your respiratory tract. Very small particles of dust can make their way into the alveoli of your lungs where, depending on the particles' chemical characteristics, they can cause diseases. Even dust from "natural" sources – such as dust from wood or flour – can be harmful to your health.

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## Health Problems Associated with Exposure to Dust

A person exposed to dust may experience eye, nose, throat, and respiratory tract irritation, coughing, and phlegm production. If the dust you are working with contains substances such as asbestos, lead, silica, western red cedar, or other hazardous substances, you could also develop long-term health problems such as breathing difficulties, asthma, or lung cancer. Smoking increases the risk of developing these health conditions.

### Protection Practices

- Know what is in the dust you are working with!
- Do not sweep dry dust. To prevent dust from becoming airborne, clean dusty surfaces with water, wet mops, wet rags, and vacuums that have high-efficiency particulate air filters.
- Do not use compressed air to clean up dust.

To control your exposure in the workplace to dust that may contain a hazardous substance, be aware of the work processes you are doing that create dust and take the proper steps to reduce or eliminate your exposure. It is your employer's responsibility to develop and implement a plan to make sure you are not exposed to too much dust that may contain a hazardous substance.

## Detergents and Cleaning Products

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Substances that are used for cleaning in a variety of jobs (e.g., hotels, restaurants, construction, retail) are often hazardous.

Make sure you know the risks of the cleaning products you are using. Cleaning products in the workplace should be labelled with information about the safe use of the product. They should also come with a Material Safety Data Sheet (MSDS). The MSDS will give you information on the hazards that may be presented by the product and steps you can take to protect yourself from any risks associated with the product.

### Health Problems Associated with Exposure to Detergents and Cleaning Products

One of the most common health effects associated with working with detergents or other cleaning products is dermatitis. Many detergents and cleaning products irritate or attack the body's protective organ – the skin – and weaken its job as a barrier.

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## Pesticides

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Insecticides are a type of pesticide used to kill or control insects. When organo-phosphate insecticides – commonly called OPs – enter the human body, they impair the body’s ability to control normal nerve and muscle function.

OPs are used

- On farms and in orchards to control insects that damage crops
- On farms and ranches to control pests that infest animals and farm buildings
- In veterinary products used to control pests that infest livestock and pets
- In nurseries to control pests that attack greenhouse crops and bedding and ornamental plants
- In the forest industry to protect trees and tree seedlings
- In warehouses, retail stores, schools, office towers, and other buildings to control termites, carpenter ants, and other pests

Most OPs have strong odours that smell like garlic. They are very toxic and can enter the body in the following ways.

- Through the skin – The skin is the most likely way for OPs to enter the body. They can be absorbed not only through skin that is cut or scraped, but also through intact skin. Exposure through the skin often occurs with spills or splashes during mixing or spraying. Eyes and genital areas absorb pesticides more easily than hands and forearms.
- Through the lungs – The risk of inhaling OPs is higher if they tend to remain in the air after application. Inhalation of vapours, fine dusts, and fogs are the main concerns. The risk of inhaling OPs may be very high in greenhouses, mushroom barns, warehouses, or other enclosed areas where ventilation is poor.
- By swallowing – The most severe poisonings often result when OPs are swallowed. The stomach and intestines absorb pesticides easily. You can ingest OPs if you eat, drink, or smoke in a contaminated area, or don’t wash your hands before doing any of these things.

### Protection Practices

You must wear personal protective equipment to use OPs safely. What you need depends on how toxic the OP is, the type of formulation (solid, liquid, or gas), and the risk of exposure. For example:

- If you are working with concentrated OPs as a mixer or a loader, you need goggles, gloves, a respirator, and protective clothing to guard against splashes, spills, and vapours.
- If you are working as a flagger involved in aerial applications, you could be exposed to spray drift and should protect your eyes and all of your skin.

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No one material provides protection against all types of OPs. Check the OP product label for the type of glove recommended for use when handling the product. If the label doesn't tell you, ask your boss or contact the supplier. How often you need to replace your gloves depends on the gloves' thickness, how well they have been taken care of, and their amount of use. Check gloves regularly for wear and tear. Don't use a glove that has a hole or worn spots.

Wear 100 percent cotton coveralls and other clothing, or an outer rain or spray suit. Rain or spray suits worn during pesticide applications should be waterproof, tear-resistant, and resistant to the solvent used in the OP. Pesticides pass through polyester; cotton absorbs them. Check the labels on your clothing to be sure that they are 100 percent cotton, not a cotton-polyester blend.

When using any OP, you should at minimum wear a long-sleeved shirt, long-legged pants, socks, waterproof boots, and gloves.

In addition to wearing personal protective equipment, you should also practise good hygiene, including washing your hands

- After handling OPs
- Before eating, drinking, or using the toilet
- Before going home

### **For more information**

*The jobsite might be making you sick...you just don't know it yet: How to protect yourself from exposure to asbestos*

[www.worksafefbc.com/publications/health\\_and\\_safety/by\\_topic/assets/pdf/PH106.pdf](http://www.worksafefbc.com/publications/health_and_safety/by_topic/assets/pdf/PH106.pdf)

*The jobsite might be making you sick...you just don't know it yet: How to protect yourself from exposure to silica dust*

[www.worksafefbc.com/publications/health\\_and\\_safety/by\\_topic/assets/pdf/PH105.pdf](http://www.worksafefbc.com/publications/health_and_safety/by_topic/assets/pdf/PH105.pdf)

# Exposure to Biological Hazards

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Biological hazards discussed here include blood-borne diseases (e.g., HIV and hepatitis A, B, and C), West Nile virus, tick-borne diseases, and hantavirus.

## Blood-Borne Diseases Such as HIV and Hepatitis A, B, and C

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Blood and certain body fluids can be infected with tiny organisms that can cause disease in humans. These micro-organisms are known as blood-borne pathogens. Those of most concern are the human immunodeficiency virus (HIV) and the hepatitis B and C viruses. HIV causes the disease AIDS (acquired immune deficiency syndrome), and the hepatitis B and hepatitis C viruses cause diseases with the same names.

Employees who work outdoors in areas where public access can't be controlled, and inside workers who work at places frequented by the public, sometimes find used needles and condoms in their work areas. These items – which could carry HIV and the hepatitis B and C viruses – are often thrown away in parks, streets, alleys, empty lots, public washrooms, and on beaches.

Most workers won't ever come into contact with blood and body fluids that can spread HIV and the hepatitis B and C viruses. Still, even if you work in a setting where contact with blood and body fluids is not expected, you should take some basic precautions, because it is possible to become infected from a single exposure incident – that is, harmful contact with infected blood or body fluids.

### Transmission of HIV and the Hepatitis B and C Viruses

HIV and hepatitis B and C viruses can all be spread by infected blood. They can also be spread by certain other infected body fluids. For infection to occur, viruses from infected blood and body fluids must enter the body. Whether the infection will occur depends on each individual's ability to fight infection. Human tissues and organs used for transplant can also transmit these viruses.

Some of the body fluids that spread these viruses include

- Semen
- Vaginal secretions
- Amniotic fluid (fluid that the fetus lives in within the womb)
- Fluid around the heart
- Fluid in the lining of the lungs
- Fluid in the abdomen
- Fluid in joints



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- Fluids surrounding the brain and spinal cord
  - Breast milk (known to transmit only HIV)
  - Saliva (known to transmit only hepatitis B)
  - Any body fluid with visible blood

The following body fluids **do not** spread HIV or hepatitis B or C unless you can see blood in them:

- Tears
- Nasal secretions
- Sputum (coughed up from the lungs)
- Vomit
- Urine
- Sweat
- Feces

These body fluids, however, may spread other infections (e.g., feces can spread hepatitis A and sputum can spread tuberculosis), but they are not of concern in the spread of HIV and the hepatitis B and C viruses.

### Exposure to Infected Blood and Body Fluids at Work

For contact with infected blood and certain body fluids to pose a risk of infection, blood-borne viruses must have the opportunity to enter the body. Whether an infection occurs depends on the individual's ability to fight infection. Workers can be exposed to infected blood and body fluids at work in the following ways:

- By puncturing the skin with a sharp object contaminated with infected blood and body fluids (e.g., needles, scalpels, knives, razors, scissors, broken glass, and anything else that can pierce, puncture, or cut skin)
- By splashing infected blood and body fluids into the mucous membranes (the tissue lining of the eyes, nose, or mouth)
- By splashing infected blood and body fluids onto broken skin (e.g., fresh open cuts, nicks, wounds, skin abrasions, chapped or damaged skin, and skin with disease such as eczema and dermatitis)

Although HIV is considered fragile outside the human body, it is not known how long it can live on discarded needles and sharps.

Hepatitis B and C can pose much greater risk to workers than HIV because these viruses are more easily transmitted. The hepatitis B virus is also much hardier – it can survive in a dried state on surfaces at room temperature for at least one week. There is no data on how long the hepatitis C virus can last in the environment, and this has not been established as a route of transmission.

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## Protection Practices

- Recognize the common work-related risks, such as
  - Cleaning hotel rooms
  - Cleaning bathrooms
  - Picking up litter (e.g., needles, condoms, and other sharp objects) from the ground, alleys, parking lots, and streets
- Follow your employer's or your company's safe work procedures.
- Ensure that biological and other related waste is placed in specially marked containers.
- Wear gloves and a face mask.
- Make sure you cover cuts and scratches.

When exposed to infected or potentially infected blood or body fluids

**1. Get first aid immediately.**

- If the mucous membranes of your eyes, nose, or mouth have been affected, flush them with lots of clean water at a sink or eyewash station.
- If there is a sharps injury, allow the wound to bleed freely. Then wash the area thoroughly with non-abrasive soap and water.
- If an area of broken skin is affected, wash the area thoroughly with non-abrasive soap and water.

**2. Report the incident.**

Report the incident as soon as possible to your supervisor and first-aid attendant or occupational health staff. Make sure there is no significant delay in seeking medical attention.

**3. Seek medical attention immediately.**

Seek medical attention immediately – preferably within two hours – at the closest hospital emergency room or at a health care facility if there's no hospital emergency room in the vicinity. Immunizations or medications may be necessary. These may prevent infection or favourably alter the course of the disease if you do become infected. Blood tests should also be done at that time. You may need to see your family doctor within the next five days for follow-up, such as counselling and medications.

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## West Nile Virus

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West Nile virus infection occurs when the virus is transmitted to humans, primarily by bites from mosquitoes. People infected with the West Nile virus usually either show no symptoms at all, or develop West Nile fever. West Nile fever is a mild disease, like the flu, that typically lasts only a few days and is not believed to have any long-term effects. Severe cases of West Nile virus infection, however, can result in one of the following:

- West Nile encephalitis, an inflammation of the brain
- West Nile meningitis, an inflammation of the membrane around the brain
- West Nile meningoencephalitis, an inflammation of the brain and the membrane around it.

The signs and symptoms of these severe diseases may last several weeks and could result in permanent neurological effects.

### Protection Practices

You can reduce or eliminate the risk of becoming infected with the West Nile virus by taking preventive measures to minimize mosquito bites. One of the best ways to do this is to reduce or eliminate mosquito populations. That is usually done by getting rid of sources of stagnant or standing water that serve as mosquito breeding grounds. Mosquitoes need only four days to breed in stagnant or standing pools of water.

If you have to work outside, there are several measures you can take to prevent mosquito bites:

- Cover as much of your skin as possible by wearing long-sleeved shirts, long pants, and socks. Wear light colours, since dark colours attract mosquitoes.
- Cover exposed areas of your skin with an insect repellent. According to the B.C. Centre for Disease Control, insect repellents containing DEET offer the best protection against mosquitoes. (The percentage of DEET in repellents should not exceed 30 percent for adults or 10 percent for children.) Make sure you follow the directions when using insect repellents and do not apply it to skin that is already cut, burned, or otherwise irritated.
- Apply insect repellent to the outside of your clothing, as well as to all exposed skin.
- Do not wear perfume or cologne, which may attract mosquitoes.
- Do not pick up dead birds with your bare hands. The birds may be carrying the virus.

Mosquitoes are most likely to swarm during the late evening and early morning hours, so take extra precautions at these times.

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## Tick-Borne Diseases

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If you are working in a grassy or wooded area, it is important to protect yourself from ticks. Two species of ticks in British Columbia can cause diseases in humans:

- The Rocky Mountain wood tick is found in the British Columbia interior dry belt from the U.S. border north to Williams Lake and east to Alberta. If these ticks remain on the body for several days, their bites can cause tick paralysis, which usually stops shortly after the tick has been removed. Symptoms start with numbness in the feet and legs, making walking or standing difficult. These ticks can also carry Rocky Mountain spotted fever, but that disease rarely occurs in Canada.
- The western black-legged tick lives in vegetation in the warm, moist coastal areas of Vancouver Island and along the mainland from the U.S. border to Powell River. Its range extends eastward along the Fraser River to Hope and north to Boston Bar. The bite is often painful and may result in a slow-healing ulcer. In rare cases, some western black-legged ticks carry bacteria that may cause Lyme disease, with symptoms such as a red skin rash, fever, headache, fatigue, sore throat, and swollen glands.

### Protection Practices

- Wear long pants and a long-sleeved shirt. Tuck pants into socks and shirt into pants. Spraying insect repellent containing DEET on your pants may help repel ticks.
- Avoid walking or resting in areas overgrown with vegetation.
- After working, examine your body and clothes closely for ticks.
- Remove ticks immediately when you find them.

## Hantavirus

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Hantavirus infection is caused by a virus that is found in some rodents, especially deer mice. The virus is rarely transmitted to people, but when it is, it can cause severe illness – hantavirus pulmonary syndrome (HPS) – and even death.

Although only deer mice have been found to carry the virus in British Columbia, other rodents should not be ruled out as potential carriers. The virus does not appear to cause illness in rodent hosts. Infected rodents shed the virus in saliva, urine, and feces, and it is then spread to humans when particles of infected saliva, urine, or feces are inhaled. The virus may be inhaled during direct contact with the rodent, or from breathing airborne dust particles that are generated when rodent excreta are disturbed. The virus can be spread if infected materials contact broken skin or the membrane lining of the eyelids and the eyeball.

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It is not known whether someone can become infected from a rodent bite or by eating or drinking food or water contaminated by rodents.

Many of the confirmed cases of Hantavirus Pulmonary Syndrome in British Columbia have been work related, and most of these cases have appeared to involve direct contact with mice or their droppings. Cases of hantavirus in the United States, Alberta, and British Columbia have been associated with activities such as

- Sweeping out a barn and other ranch buildings
- Trapping and studying mice
- Using compressed air and dry sweeping to clean up wood waste in a sawmill
- Handling grain contaminated with mouse droppings and urine
- Entering a barn infested with mice
- Planting or harvesting field crops
- Occupying previously vacant dwellings
- Disturbing rodent-infested areas while hiking or camping
- Living in dwellings with a sizable indoor rodent population

### Protection Practices

The primary prevention strategy for minimizing worker exposure to hantavirus is to control rodent populations in and around the worksite. An effective rodent control program requires an integrated approach and includes

- Ongoing inspections for rodents – ensuring the area is inspected by qualified people who can determine if active rodent control is required
- Sanitation – reducing the number of places, both inside the worksite and in the immediate vicinity, where rodents may feed or find shelter
- Rodent proofing – ensuring rodents cannot get into building spaces (e.g., by closing openings where rodents gain entry, installing barrier materials such as steel wool, fine mesh screens, mortar, and sheet metal)
- Rodent population reduction – reducing and controlling the population through the use of poison or traps

# Employability Skills Self-Assessment

	I feel that I am strong/medium/weak in this area.		
	Strong	Medium	Weak
I am able to listen attentively to learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can read, comprehend, and use written materials, including graphs and images.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can solve problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can apply knowledge from one area of life to another.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can suggest new and creative ways to get things done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can use tools and technologies effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I respect individual differences within a group.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can work effectively as part of a team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can work effectively independently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can work with people of diverse abilities and backgrounds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can motivate and lead others in my group.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am willing and open to learn continuously throughout my working life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Adapted from the Employability Skills profile, Conference Board of Canada  
[www.conferenceboard.ca/libraries/educ\\_public/emskill.sflb](http://www.conferenceboard.ca/libraries/educ_public/emskill.sflb))

**PRINT**

# Appendix C: For More Information

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## **WorkSafeBC – Resources for Educators**

[www2.worksafebc.com/Topics/YoungWorker/Resources-Educators.asp](http://www2.worksafebc.com/Topics/YoungWorker/Resources-Educators.asp)

Much of the information on this page has already been repurposed in this teacher resource, but additional relevant materials can be found here.

In particular, the page contains links to the following resources that teachers may find useful:

- 6-minute Safety Talks for Apprenticeship Programs
- Young Worker Exposure Prevention Guides
- Young Worker Speakers Network
- *Lost Youth* video discussion guide
- *Joe Who* video teacher guide

## ***Heads Up! for Safety: A Safety Handbook for Technology Education Teachers***

(B.C. Ministry of Education)

[www.bced.gov.bc.ca/irp/resdocs/headsup.pdf](http://www.bced.gov.bc.ca/irp/resdocs/headsup.pdf)

