



## Lesson Plans

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**Lesson Plan:** Metalworking Machine Operators

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**Sector:** Metalworking

**Occupation:** Machine Operators  
NOC 9514

**Theme:** Workplace Health and Safety

**Occupational Task:** identify and explain hazard symbols for safe handling

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**Essential Skills (ES) developed during the learning activities:**

**Document Use**

- Read Workplace Hazardous Materials Information System (WHMIS) labels on products such as Varsol, propane and acetylene. (ES2)

**Oral Communication**

- Interact with co-workers to ask and answer questions on safety issues related to hazardous chemicals. (ES 1-2)

**Thinking Skills**

- Make inferences about the level of hazard and decide when there is a safety risk. (ES2)

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**Canadian Language Benchmarks (CLB) competencies developed during the learning activities:**

**Speaking**

- Present a detailed analysis or comparison. (CLB 7)
- Give clear instructions related to moderately complex familiar technical tasks. (CLB 7)
- Give and respond to a warning. (CLB 7)
- Communicate facts in some detail. (CLB 8)
- Participate in a group during a training workshop. Give opinions and suggestions.

**Listening**

- Understand conceptualized short sets of instructions and directions. (CLB 6)
- Evaluate the factual accuracy of oral instructions and recommend solutions to problems. (CLB 7-8)

**Reading**

- Read warnings printed on labels of commercial/industrial chemical products. (CLB 7)
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- Interpret selections from texts about safety precautions at a workplace

(e.g. WHMIS: Workplace Hazardous Materials Information System). (CLB 8)

### Language focus

- Read and explain graphic symbols; give directions for safe use of chemicals.

### Grammar

- Use information questions conditionals and modals, short imperative statements and explanations.
- Use logical connectors (first, next, finally).

### Vocabulary

- WHMIS vocabulary: hazardous material, compressed gas, flammable, poisonous, toxic, chemical names as necessary.

### Culture

- Explanations may be difficult to hear because of noise in the workplace.
- Employees are expected to ask questions about safety.
- Employees are expected to look out for their own safety and the safety of others.

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### Suggested teacher resources and classroom materials needed:

1. WHMIS symbols and information  
[www.utoronto.ca/safety/WHMIS/whmis9.htm](http://www.utoronto.ca/safety/WHMIS/whmis9.htm)  
University of Toronto
2. Good questions and answers about WHMIS  
[cchohs.ca/oshanswers/legis/intro\\_whmis.html](http://cchohs.ca/oshanswers/legis/intro_whmis.html)  
Canadian Centre for Occupational Health and Safety
3. WHMIS VIDEO – “THE WINNING LABEL”- This animated training video introduces the basic concepts of WHMIS. It relies on visual presentation and is effective for employees who may not read or understand English.
  - Animation style is amusing, practical, informative, effective
  - About 9 minutes long[www.danatec.com/pro\\_whmis\\_vid\\_twl.php](http://www.danatec.com/pro_whmis_vid_twl.php)  
Danatec Educational Services Ltd.
4. Three card sets: Pictures of WHMIS symbols, names of symbols and words that describe the symbols (ideas are included as an attachment with this lesson plan)
5. English only dictionaries for each pair of learners



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**Estimated time for the learning activities:** 2 lessons of 2 hours each

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**Learner Profile:**

- Learners will be assembly line workers who will come with some WHMIS and safety training. They will have seen the hazard symbols on chemical labels.
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**Learning Objectives:**

The learner will be able to:

- 1 Read hazard symbols to obtain information about safe handling of chemicals.
  - 2 Ask and answer questions to clarify understanding of the symbols and safety in the workplace.
  - 3 Indicate comprehension of vocabulary related to the hazard symbols by explaining the dangers to another person.
  - 4 Give directions to others about safe handling of chemical substances.
  - 5 Explain what WHMIS is and why it is important.
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**Learning activities:**

**Lesson 1** (2 hours)

- Write WHMIS on the board and brainstorm what learners already know.
  - Show a photo or picture of a hazard symbol and ask questions. What is it? Why is it important? Where do you see it?
  - At the worksite, go on a factory tour to identify where chemicals with hazardous symbols are. Have learners try to identify the meaning of the symbols.
  - Off site bring in examples of chemicals, or pictures/photographs of chemicals that have the symbols on them. Have learners try to identify the meaning of the symbols.
  - Show the video, *The Winning Label*, if you have it (the video is good for building respect for safety. It's about 9 minutes long) Use any of the following to reinforce the video's message:
    - A) Develop a board game that provides practice with vocabulary and reinforces safety message.
    - B) Ask learners to generate questions based on video viewing for a partner to answer.
    - C) If you don't have the video, talk about safety in the factory and why it is important. Ask learners to give examples of what dangers are in the specific parts of the factory in which they work.
    - D) Ask learners to generate questions about workplace dangers for a partner. (e.g. what do I do to protect myself in the workplace? What do I do if there is a chemical spill? What do I do if I get a chemical on my skin? What should I do if gas tanks are not secure? What should I do if oxygen tanks are close to combustible materials? If you are not using the video, these questions could be class generated and class answered.
    - E) In pairs, ask and answer generated questions from D.
    - F) Class Discussion: Discuss what each person can do to ensure safety for themselves and others in a particular work environment. Record ideas on board or flipchart.
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## Lesson 2 (2 hours)

### Reading Tasks (1.1/2 hours)

1. In pairs, using the Hazard Symbol cards, learners match the symbol with the symbol name and then attempt to match the name with the information.
2. Class compiles the information into a wall chart.
3. Learners identify new vocabulary and write it on the board (or flipchart). See if anyone knows the meaning of the vocabulary.
4. Learners, working in pairs, use dictionaries to find meanings of new vocabulary. (I always tell my learners to use a 2 or 3 word meaning.) If you have access to computers, you can show them how to use an online dictionary if they don't already know how.
5. Class compiles a list of the new vocabulary with meanings (use the WHMIS lexicon).

### Speaking Tasks (1/2 hour)

1. Each learner is given the name or symbol of a chemical and is asked to state its danger and provide instructions for its safe handling (use imperatives and new vocabulary).
2. Use questions generated from lesson 1 (activity 2) to review meanings of symbols and safety procedures (modals).

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### Additional and/or extension learning activities:

If the class meets in the workplace, learners tour the factory and look for safety labels and warnings other than the ones covered in class. They then return to class and describe what labels or warnings they found, research their meaning on the WHMIS website and discuss what potential safety hazards are implied.

If the class meets outside the workplace, learners look for safety labels in their work area and come prepared to describe what symbols they found and their meanings at the next class. They could also explain how they would instruct a co-worker about safe behaviour or handling.

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### Evaluation:

Learners match WHMIS labels with the correct information about the symbol and the correct symbol name on a chart. The learners can self-correct from a model and instructor double checks for accuracy.

Learners will ask and answer questions to clarify understanding of the symbols and safety in the workplace. Questions and answers will be checked for accuracy by the instructor.

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Canadian Language  
Benchmarks/  
Essential Skills







Niveaux de compétence  
linguistique canadiens/  
Compétences essentielles

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WHMIS Hazard Symbols CARDS		
	<b>COMPRESSED GAS</b>	when ruptured can become a projectile
	<b>FLAMMABLE AND COMBUSTIBLE MATERIAL</b>	will ignite and continue to burn
	<b>OXIDIZING MATERIAL</b>	will release oxygen causes or contributes to the combustion of another material
	<b>Materials Causing Immediate and Serious Toxic Effects</b>	very toxic
	<b>Materials Causing Other Toxic Effects</b>	<i>Examples: Asbestos causes cancer, ammonia is an irritant</i>
	<b>Biohazardous, Infectious Material</b>	a blood sample containing the Hepatitis B virus



	<p><b>CORROSIVE MATERIAL</b></p>	<p>Burning, scarring, and blindness may result from skin or eye contact</p>
	<p><b>DANGEROUSLY REACTIVE MATERIAL</b></p>	<p>Dangerously reactive materials They may also react with water to release a toxic gas.</p>