
Lesson At A Glance

Length	60 minutes
Learning Objectives	Students will: <ul style="list-style-type: none">• understand how hazardous materials and substances can affect the human body• recognize WHMIS symbols and classes
Teaching Strategies	<ul style="list-style-type: none">• transparencies• catch phrases• cooperative groups• questioning
Equipment/Instructional Aids	<ul style="list-style-type: none">• Student Handouts (photocopy for students in class)• overhead transparency• overhead projector and screen• timer (or clock)
Assessment Strategy	<ul style="list-style-type: none">• True/False Activity• worksheets

Purpose

This module is designed to help students recognize the effects of hazards substances and materials on the human body.

Learning Objectives

Students will be able to:

- understand how hazardous materials and substances can affect the human body
- recognize International Hazard symbols

Duration

60 minutes

Instructional Materials

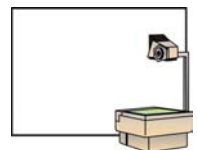
Student Handouts

(photocopy for students)

1. International Hazard Symbols
2. True/False Statements
3. Plus/Minus Worksheet

Equipment

1. Timer (or can use clock)
2. Overhead Projector and Screen



Note to Teacher

When we think about hazards in our work or play, we do not always think about hazardous materials and substances. If we come upon a spill, we often think about the necessity to clean it up so that no one will slip and fall, but we do not always ask ourselves, “What is this substance?” or “Is this substance toxic and could it harm me if I come into contact with it?”

Hazardous materials and substances can be toxic (i.e. poisonous to the body) solids, liquid or gases which can cause injury or disease when we are exposed to them. Some examples are bleach, oven cleaner, fertilizer and pesticides. Damage can occur immediately or over a period of time.

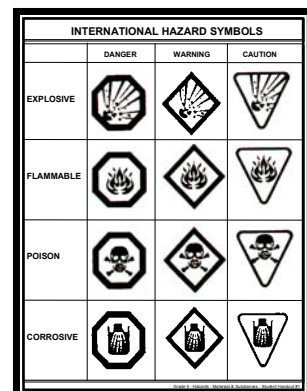
Hazardous materials and substances are in our homes, schools and community, therefore, it is the focus of this section to help students learn about these hazards so they will be able to:

- See It! Recognize the hazard
- Think It! Evaluate the hazard
- Do It! Control or eliminate the hazard

This module will introduce students to the International Hazard symbols, also called consumer symbols.

Introduction

Distribute Student Handout #1 to students.















Introduction - continued

Discuss

The chart in the handout lists International Hazard Symbols that appear on products commonly seen in most homes, including cosmetics (hairsprays), pesticides (Raid) and cleaners (oven cleaner).

Children should know that these symbols, no matter what shape the borders may be, mean the substance is dangerous. Containers with these symbols should be kept in a locked cabinet, out of sight and out of reach of primary aged children. Even a triangle caution sign signifies a substance which has the potential to harm a child. The rule for containers with these symbols should be: “Do not touch, do not taste, do not smell, do not move or use any container with these symbols”.

INTERNATIONAL HAZARD SYMBOLS			
	DANGER	WARNING	CAUTION
EXPLOSIVE			
FLAMMABLE			
POISON			
CORROSIVE			

A child in grades 4 to 6 should not touch or use any substance with **any** of these symbols without direct and continuous adult supervision. Teachers and adults should be aware that containers bearing these symbols also carry specific storage instructions (e.g. should the container be kept away from heat) and specific instructions for safe disposal of the empty container. The containers also carry first aid instructions including poison control information.

The border that surrounds each symbol signifies the danger level of the hazard.



Introduction - continued

Discuss

An **octagon** (same shape as a **stop sign**) indicates “**DANGER**” and represents the most dangerous hazard.



A four-sided diamond, indicates “**WARNING**” and represents a **moderate** or **medium** hazard level. A warning diamond does not pose as extreme a risk as the danger octagon.



The **upside-down triangle** indicates “**CAUTION**” and represents the **slightest** or **least hazard of the three borders**. This does not make it hazardless! Use these products with caution.



Beat the Clock Learning Activity

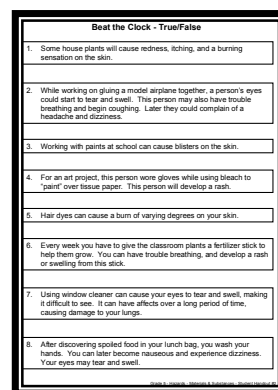
Comment

In this activity, you will be able to practice recognizing the effects of hazardous substances and materials on the human body.

Divide students into groups of 4 or 5.

Distribute Student Handout #2 (True/False Questions) to groups.

Ask groups to cut out the strips from the handout. The group must then sort out the true and false statements in a given amount of time. Try to “beat the clock”.



Call **START!** Use timer to control the amount of time the groups have to do this task (3 to 5 minutes). Call **STOP!** when time is up.

Review answers with class.

Answer Key to True/False Statements:

- | | |
|-----------------------------------|----------|
| 1. True | 5. True |
| 2. True | 6. False |
| 3. False (irritation if allergic) | 7. True |
| 4. False | 8. False |

Plus and Minus Learning Activity

Distribute Student Handout #3 to students.

Ask students to:

1. List hazardous materials and substances found at school and at home on the left hand column on the handout.
2. Have students exchange lists with another student to complete the rest of the handout.
3. Students will evaluate whether the material or substance is “safe” using a “plus” sign and a “minus” sign to indicate if it is unsafe. Students need to explain their reasoning in the “why” column and describe what could be done to make the situation safe (if a minus sign).

Name _____ Date _____			
PLUS AND MINUS WORKSHEET			
Substances: Home and School	Plus/Minus	Why?	Prevention
		<small>Think about: Safe storage & handling. Cleanup procedures. Is protective equipment necessary & available? What is the product used for?</small>	<small>What could be done to make each situation safe. Focus on eliminating or reducing the hazard.</small>

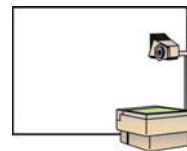
©2011 E. Science Materials & Supplies, Inc. Student Handout #3

Explain to students that they should think about and evaluate each item for:

- safe storage and handling
- clean-up procedures
- whether protective equipment is necessary and available
- what the product is used for



Plus and Minus Learning Activity - continued



Optional: Display Overhead #1 (overhead produced by Student Handout #3).

Elicit responses from students or ask students to present one of their findings. Write student responses on overhead.

Name _____		Date _____	
PLUS AND MINUS WORKSHEET			
Substances: Home and School	Plus/Minus	Why?	Prevention
		<small>Think about: Safe storage & handling; Clean-up procedures. Is protective equipment necessary & available? What is this product used for?</small>	<small>What could be done to make each "situation" safer. Focus on eliminating or reducing the hazard.</small>

Potential Hazardous Substances and Materials

Sample List:

- paints
- eye care products
- batteries
- aluminum cans
- acids
- furniture polish
- microscopes
- steel wool
- plants

Teacher's Answer Key (samples) on following page.

Name _____ Date _____

PLUS AND MINUS WORKSHEET

	Plus/Minus	Why?	Prevention
SAMPLE	Think about: Safe storage & handling. Clean-up procedures. Is protective equipment necessary & available? What is this product used for?		What could be done to make each "situation" safe. Focus on eliminating or reducing the hazard.
	Fantastic Cleaning Product	Plus	Stored on high shelf, labeled; rags used with this are always washed right away and not used with any other product.
Glue	Minus	Smaller bottles filled from bigger bottle, but are not labels; big bottle of glue is left lying on shelf instead of put away in cupboard.	Label all bottles; keep tightly sealed; put glue bottle out of reach of Teacher's cupboard and label it.
Bleach	Plus	Stored in the art room which is locked; has WHMIS label and MSDS sheets; gloves beside bleach; buckets washed out and dried immediately after use.	
Paint & Stain	Minus	In garage on floor; not used in a well-ventilated area; not properly sealed, stir stick sticking out.	Use in well-ventilated area; make sure Container is labeled and securely sealed; dispose of anything that was used with paint/stain (in plastic bag, put in garbage)

Conclusion

Conclude / Reflect

Review with students the following questions to ask about handling or exposure to materials and substances:



See it. - What is the material or substance used for? What is unsafe? Does it have a label stating precautionary measures?



Think It. - Does handling the material or substance require protective equipment? Am I aware of the safe storage and handling procedures?



Do It. - Is the area well ventilated? Are containers on tight? Do I have the proper protective equipment on?