

Lesson Plan: *Chemical Protective Gear*

A. Main Objective:

Learn the proper protective gear for handling chemicals and the steps to take if exposed to hazardous chemicals.

B. Goals:

1. Describe the risks and benefits of agricultural chemicals.
2. Identify the proper safety clothing and equipment to wear when handling chemicals.
3. Properly store chemicals and other hazardous materials.
4. Identify symptoms of pesticide poisoning and proper first aid procedures.

C. Required Items:

1. A volunteer
2. Proper clothing including long-sleeve shirts, long pants, or a plastic/paper chemical suit
3. Protective gear including unlined rubber gloves and boots, bump hat with plastic band, respirator and goggles or face shield
4. Other protective gear such as ear plugs, ear muff, safety glasses, dust/mist mask, sunscreen and eye-wash bottle
5. Examples of proper and improper chemical storage
6. Color photographs of injuries sustained from chemical exposure (optional)

D. Activities:

1. Dress the volunteer in proper protective equipment for chemical handling.
2. Place photos of injuries sustained from chemical exposure near the volunteer.
3. Display examples of proper and improper chemical storage containers.
4. Arrange samples of various protective gear on a display table.

E. Discussion Points:

1. Discuss the benefits of safe handling and use of chemicals, risks of using chemicals, and compare the risks of chemical use to other high-risk activities (examples: smoking, driving, drinking, etc.).
2. Have participants name some of the chemicals used on their farms. Be sure students mention some of the less obvious chemicals, such as cleaning solutions, acids, ant killer and garden dust.

3. Explain what the following signal words on chemical containers mean and discuss how exposure can occur: Danger! Warning! Poison! Skull/Crossbones.
 - A. Highly toxic. Exposure by oral, dermal or inhalation methods. Very small amount (taste to a teaspoon) can be fatal. Warning!
 - B. Moderately toxic, slight skin/eye irritation. Small amount (teaspoon to 1 ounce) can be fatal. Caution!
 - C. Low toxicity to relatively nontoxic. Moderate amount (1 ounce to 1 cup) can be fatal.

4. Explain various ways chemical can enter the human body.
 - A. Skin
 - B. Blood
 - C. Mouth
 - D. Eyes
 - E. Nose

5. Identify the symptoms of chemical exposure.
 - A. Headache
 - B. Fatigue
 - C. Weakness
 - D. Dizziness
 - E. Nausea
 - F. Thirst
 - G. Skin/eye/nose/throat irritation
 - H. Stomach cramps
 - I. Diarrhea
 - J. Confusion
 - K. Blurred vision
 - L. Muscle twitching
 - M. Convulsions

6. Discuss the steps of first aid.
 - A. Get help if possible.
 - B. Be sure victim is breathing.
 - C. Remove source of exposure or get victim away from area and to fresh air.
 - D. Remove contaminated clothing, soak with clean water.
 - E. If chemical in eyes, rinse eyes for 30 minutes.
 - F. Cover victim with a blanket.
 - G. Take the chemical label to doctor.

7. Ask participants what type of clothing should be worn when handling chemicals. Using a volunteer wearing protective equipment, briefly discuss the function of each of the following items:
 - A. Two-strap facemask
 - B. Respirator

- C. Goggles and safety glasses, face shield
 - D. Ear plugs and muff
 - E. Eye-wash bottle
 - F. Sunscreen
8. Ask participants to explain proper chemical storage methods. Be sure to explain:
 - A. Why it is dangerous to store chemicals in unmarked containers
 - B. Why and where chemicals should be stored
 - C. Why children should never play in the storage area
 9. Review laundry precautions that must be taken when washing chemical contaminated clothing.
 - A. Wash contaminated items alone in hot water.
 - B. Don't throw chemical-contaminated clothes into the regular hamper.
 - C. Use special plastic-lined box for these clothes.
 - D. Wear gloves when washing these clothes.
 10. Show pictures of injuries sustained from chemicals and discuss their seriousness.
 11. Apply Vaseline to lenses of safety glasses. Let participants try them on to demonstrate visual impairment from a chemical injury to the eyes.
 12. Dress a participant volunteer in proper protective gear. Encourage all participants to try on various pieces of protective gear.
 13. Reinforce the importance of having soap and water available at all times.

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