



## Caution: This Product May be Hazardous to Your Health!

**Learning Objectives:** Students will: (1) locate and interpret information on use, storage, disposal, and hazards of household products, (2) explain how disposal and storage of chemicals can cause potential groundwater contamination and (3) compare and contrast less harmful alternatives that can be used in place of many household hazardous products.

**Subjects:** Environmental Education, Health Education and Science

**WMASs: EE:** B.8.5, B.8.18, B.8.21

**HE:** A.8.2, B.8.4, D.8.2, G.8.3

**SC:** C.8.2, H.8.3

**Grades:** 6–9

This activity is divided into two parts: Part 1 is designed to teach students to read instructions and information on household chemical labels. In Part 2, students are asked to complete a home inventory of hazardous materials with the help of their parents.

### Part 1: Reading Product Labels.

#### Materials:

- ❖ Reading Product Labels activity sheet
- ❖ Letter to Parents handout (for Home Search activity)
- ❖ A Home Chemical Search activity sheet (for Home Search activity)

**Background:** Many materials commonly found in our homes can be hazardous for children, adults and pets. The U.S. Environmental Protection Agency estimates that each home throws out an average of six pounds of hazardous waste every year. While six pounds may not seem like very much, it all adds up. A town of 10,000 homes can generate 60,000 pounds of hazardous waste in just one year! Take a quick inventory of materials you use and store in your kitchen, basement and garage. Many of the products you might find, including aerosol sprays, cleaners,



insect repellents and poisons, motor vehicle products, paints, paint thinners, furniture strippers and fabric stain removers are considered hazardous. They should be used, stored and disposed of with care.

Chances are the only advice you receive for using and storing these products is from the label on the container. Unfortunately, many product labels contain little or no information for disposal of leftover material or empty containers. If these products are poured or buried in the backyard or dumped into the drain or toilet they can soak through soils and reach groundwater (they can also run off into surface waters). Many products can also interfere with your wastewater treatment plant by killing bacteria essential for treating sewage.

It is important to read and follow product labels carefully to avoid possible illness, death and environmental damage that can result from misuse of or improper disposal of hazardous materials.

#### Procedure:

1. Using the following information, discuss what “hazardous” means. Explain toxic, corrosive, reactive, and ignitable.

Hazardous materials and wastes are chemical substances that can harm, contaminate or kill living organisms. Hazardous materials have one or more of the following characteristics:

- ❖ **Toxic:** Poisonous, potentially harmful to human health, can cause cancer and/or birth defects, and can contaminate, harm or kill fish and wildlife.
- ❖ **Corrosive:** A substance that can corrode storage containers or damage human tissue if touched.
- ❖ **Reactive:** An unstable substance that can react if exposed to heat, shock, air or water. Reactions include explosions.
- ❖ **Ignitable:** A substance that can explode, catch fire or emit toxic gases or fumes into the environment.

2. Generate a list of hazardous materials from each category that might be found in the home. How do people know how to use, store and dispose of these materials?
3. Complete the “Reading Labels” activity sheet.
4. Discuss your answers.
  - ❖ How might this product find its way into groundwater?
  - ❖ What effects might contamination have on people drinking the water?
  - ❖ Can you think of any alternatives to using the product?
5. Distribute the “Household Chemical Search” activity sheet and the “Letter to Parents.” Ask students to fill out only the first two columns on the activity sheet (i.e. mark with an X if the product is found and estimate the amount of chemical present). Go through the list of substances and possible locations in the home. Ask students if they have questions about any of the substances.

This activity can be an excellent opportunity for students and their parents to learn about hazardous chemicals together. **Remind students to ask their parents for help filling out the worksheet, to avoid touching any of the substances, to read container labels carefully and to wash**



**their hands when through.** Students should have 1–2 days to complete the inventory.

You might also investigate hazardous materials in your school by conducting a hazardous chemical search of your science room or cleaning supply closet!

Adapted from: *Groundwater Quality Protection in Oakland County: A Sourcebook for Teachers*, 1984, The East Michigan Environmental Action Council, 21220 West 14 Mile Road, Birmingham, MI 48010.

## Part 2: A Home Chemical Search

### Materials:

- ❖ Can Some of Your Household Products Harm You? Handout
- ❖ Household Hazardous Waste Wheel patterns and directions
- ❖ Completed Home Chemical Search activity sheet
- ❖ glue
- ❖ manila folders (2 per student)
- ❖ brads
- ❖ scissors

### Procedure:

1. Distribute “Household Hazardous Waste Wheel” patterns, directions and materials. Construct Household Hazardous Waste Wheels (follow directions printed on activity sheet 8-6). When the wheels are complete, demonstrate how to use them. It would be helpful to have some examples of hazardous household products in the room.
2. Work in small groups. Using the “Can Some of Your Household Products Harm You?” handout, rate the toxicity of the products found in your homes. Ratings are 1–6, with 1 representing the least toxic materials and 6 the most toxic. Record your ratings on the “Home Chemical Search” activity sheet.
3. Calculate the total quantity of substances listed in each category (1–6) for your group. Using the Household Hazardous Waste Wheels, list directions for disposing of all products which are at least “very toxic” (a toxicity rating of 4 or greater). For all products which are at least “very toxic,” also list at least one viable alternative to using the product.

4. Discuss the completed activity sheets.
  - ❖ What kinds of products were found in each toxicity category?
  - ❖ What was the total quantity of hazardous material in each category for your class?
  - ❖ What makes these products hazardous (e.g. toxic, corrosive, reactive, flammable)?
  - ❖ What alternatives were suggested?
  - ❖ How viable are these alternatives? Discuss advantages and disadvantages of using the alternatives and of using the products with a toxicity rating of 4 or greater.
  - ❖ Which products represent “needs” and which represent “wants?”
  - ❖ Using your homes as the average, estimate how much hazardous waste would be found in your community, in the state and in the nation.
  - ❖ How might these products enter groundwater?
  - ❖ How should these materials be disposed?
  - ❖ What kinds of warnings did you find on the containers? How can you tell if a product is considered hazardous?

### Going beyond:

1. Research the disposal of household hazardous materials in your area. Does your county, city or town offer a Clean Sweep program? If so, when is it? What products should be taken there for disposal? How much hazardous waste is collected at the Clean Sweep each year? Does your community have a waste oil disposal facility? How much waste oil is collected there each year? What is done with the waste oil? Do people in your community know that these services exist? Do most people use them? If not, what do they do with their household hazardous waste? Your city/county Health Department should be able to provide information on household hazardous waste disposal programs or see box below.
2. For more information on alternatives to household hazardous wastes and options for disposal, see *Better Homes and Groundwater* included with the Groundwater Study Guide packet.

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Many counties, cities and towns offer a “Clean Sweep” collection program. This is an opportunity for home owners to bring household hazardous materials to a central location for safe disposal. To find out about Clean Sweep programs in your area, contact your city or county health department or visit the Department of Agriculture, Trade and Consumer Protection Clean Sweep website at [datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/clean-sweep/index.jsp](http://datcp.state.wi.us/arm/agriculture/pest-fert/pesticides/clean-sweep/index.jsp).