Environmental Awareness — Think Global, Act Local

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Summary
This lesson is designed for a high school physical science, environmental science, or biology class to explore hazardous materials found at the local, state, and national level. Students will become familiar with federal agencies responsible for the cleanup of hazardous substances and related health issues associated with these substances.

Learning Outcomes

- The student will be able to differentiate between a hazardous waste and a hazardous substance, and the characteristics that define each.
- The student will identify hazardous substances in their homes and within their community and explore the use of alternative products.
- The student will explore the impact of Superfund sites on the environment and public health.

Materials

1. Photocopies of **Hazardous Substances Pretest —** (one for each student)
2. Photocopies of **Fact Sheet 1: Hazardous Substances and Hazardous Waste —** (one for each student)
3. Photocopies of **Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste —** (one for each student)
4. Photocopies of **Fact Sheet 2**: **Pollution Prevention** — (one for each student)
5. Photocopies of **Hazardous Substances and Hazardous Wastes Data Collection** form — (one for each student)
6. Photocopies of **Chemicals in the Household** — (one for each student)
7. One computer per student with Internet access.
8. LCD projector and computer to view multimedia presentations.

Total Duration: 5 hours

Procedures

Teacher Preparation
The teacher will need to become familiar with hazardous wastes and the Environmental Protection Agency (EPA) website under the category of Superfund. The teacher will need to understand the basics of a Superfund and may want to be familiar with the specific details of his or her individual state and details regarding Superfund site locations and current status regarding bioremediation. Make one copy for each student of the following:

- Hazardous Substances Pretest (Step 1),

- Fact Sheet 1: Hazardous Substances and Hazardous Waste (Step 1),
- Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste (Step 1)
- Fact Sheet 2: Pollution Prevention (Step 2),
- Hazardous Substances and Hazardous Wastes Data Collection form (Step 2 and 3),
- Chemicals in the Household (Step 3).

For more information, check out the Web resources listed below prior to beginning the lesson. The teacher will also need to secure audiovisual equipment and computers required for the activities that follow.

Web Resources

Title: U.S. Environmental Protection Agency Superfund Site
URL: http://www.epa.gov/superfund/
Description: This website provides detailed information on various Superfund sites and the clean-up efforts taking place.

Title: The Disposal of Hazardous Household Wastes
URL: http://www.cdc.gov/nasd/docs/d001201-d001300/d001236/d001236.html
Description: This website provides information on proper methods of hazardous household waste disposal.

Introduction **Duration: 60 minutes**

Step 1

Begin this lesson by administering the **Hazardous Materials Pretest** to assess prior knowledge. After completing the pretest, the teacher will present the **Hazardous Substances and Hazardous Waste PowerPoint** to further student understanding of these materials and their characteristics. Once the PowerPoint has been completed, pass out **Fact Sheet 1: Hazardous Substances and Hazardous Waste** and **Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste**. The reading and questions are required homework due at the beginning of the next class period.

Supplemental Documents

Title: Hazardous Materials Pretest
Description: This is the pretest that can be used to assess students' knowledge of hazardous substances.

Title: Hazardous Materials Pretest Answer Key
Description: This is the pretest answer key that can be used to discuss students' responses to the pretest.

Title: Fact Sheet 1: Hazardous Substances and Hazardous Waste
Description: This provides Information provided by the EPA on hazardous substances and hazardous waste.

Title: Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste
Description: These questions assess the students' understanding of the Fact Sheet 1 material.

Title: Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste Answer Key
Description: The answer key for the Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste.

Title: PowerPoint Hazardous Substances and Hazardous Wastes
Description: Supplemental lecture material to provide background information on hazardous substances and hazardous wastes and their characteristics.

Step 2 **Duration: 60 minutes**

By now the students should have an understanding of hazardous materials. The teacher will ask the students, “Do you think you have any hazardous materials in your home?” The teacher will listen to all responses and acknowledge by nodding to all responses.

The teacher will pass out the **Fact Sheet 2: Pollution Prevention** and give the students five minutes to read the information. Spend a few minutes discussing the three types of pollution — municipal, industrial, and household waste. With available remaining time, students will research the position and record of candidates seeking election or reelection, nationally or locally. During presidential election years, researching the presidential candidates is strongly recommended. At the end of the class period the teacher will hand out the worksheet **Hazardous Substances and Hazardous Data Collection** form and ask students to take the sheet home and identify all of the hazardous materials found in their homes and record them on the worksheet.

Supplemental Documents
Title: Fact Sheet 2: Pollution Prevention
Description: This fact sheet provides detailed information on municipal, industrial, and household waste.

Title: Hazardous Substances and Hazardous Wastes Data Collection form
Description: This form is to be used to collect data from individual households to be brought back to school the following day and shared with the class.

Step 3 **Duration: 60 minutes**

Now that students have returned with the **Hazardous Substances and Hazardous Wastes Data Collection** form and identified the kinds of materials they found in their homes; compile a list of products in each category found in the students’ homes on the board. Explain to the students their homes will be used as a sample of the homes in the community. Discuss how many of these products might become hazardous waste by being thrown in the trash or poured down the drains that empty into the public water system. Where do these products end up? Ask the students for ideas on what they can do personally to reduce the amount of hazardous waste.

Once the above discussion is complete, ask them to list some alternative products that do the same job as products containing hazardous substances. List these on the board. When students run out of ideas, pass out the sheet **Chemicals in the Household**. Allow students to compare the list on the board with the list they just received. Discuss the similarities and differences found and what students can do to change and educate others on the use of hazardous substances in the home.

Supplemental Documents
Title: Hazardous Substances and Hazardous Wastes Data Collection form
Description: This form is to be used to collect data from individual households to be brought back to school the following day and shared with the class.

Title: Chemicals in the Household
Description: This list provides information on common chemical products found in the household and alternatives to them.

Step 4 **Duration: 60 minutes**

The teacher will now present the **Superfund** PowerPoint presentation to the students. The presentation defines Superfund and provides the following:

- Examples of Superfund sites
- Contaminants of the sites
- Health effects related to exposure
- Information on what has become of these locations

After adequate time has been given for discussion, the teacher will direct student to the computer lab where students will locate the CDC's Global Odyssey Health Museum Virtual Tours for Kids. Students will navigate the site independently taking notes for the discussion that will follow on **Employment Opportunities in Public Health**.

Web Resource
Title: CDC Global Health Odyssey Museum Virtual Tour for Kids
URL: http://www.cdc.gov/gcc/exhibit/virtualtour/
Description: Four Virtual Tours concentrating on Field Investigations, Hazardous Wastes, Health Promotions, and Laboratories.

Supplemental Document
Title: Superfund PowerPoint presentation
Description: An overview of the EPA and its involvement with the Superfund waste sites. Public Health concerns are also outlined.

Conclusion **Duration: 60 minutes**

The teacher will list the following questions on the board:

- What if there was not a Superfund program?
- What would you do if there was no more landfill capacity?
- What if there was no control over hazardous waste?
- What if there was no hazardous waste?

Explain to students that they are to write a response to one of the questions on the board. The students have the option to respond by writing a short story, a song, or a poem. Students can complete this activity during class time in a computer lab, or as a homework assignment. Each teacher should choose the form that best conveys his or her ideas.

Assessment

The assessment will include

- **Hazardous Materials Pretest (Step 1)**,
- **Questions: Fact Sheet 1: Hazardous Substances and Hazardous Wastes (Step 1)**,
- **Hazardous Substances and Hazardous Wastes Data Collection form (Step 2 and 3),** and
- A short story, song, or poem created in the conclusion.

Modifications

Extensions

Students can contact their local government environmental services office or sanitation department and find out about recycling programs designed to minimize hazardous waste. For example, have them find out how used paint thinner and leftover paints should be disposed of in their community.

Students can contact local gasoline service stations, oil change and auto lubricating shops, and nursery and garden supply companies and report on how these firms are required to dispose of hazardous substances.

Have students send their essays, songs, and poems to a local newspaper and explore getting them published.

Have students contact the local health or environmental services department to investigate how much industrial garbage is collected and disposed of each year and what the community government is doing to deal with potential hazardous waste problems this creates.

Invite local manufacturers and business owners in to come in to discuss their pollution prevention programs.

Plan a field trip to a local recycling center or hazardous waste collection center. Check with local or state government to see if there is a household hazardous waste collection program in your area.

Education Standards

National Science Education Standards

PHYSICAL SCIENCE CONTENT STANDARD B
As a result of their activities in grades 9–12, all students should develop an understanding of

- Structure of atoms
- **Structure and properties of matter**
- **Chemical reactions**

SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES CONTENT STANDARD F
As a result of activities in grades 9–12, all students should develop understanding of

- **Personal and community health**
- Population growth
- Natural resources
- **Environmental quality**
- **Natural and human-induced hazards**
- **Science and technology in local, national, and global challenges**

HISTORY AND NATURE OF SCIENCE CONTENT STANDARD G
As a result of activities in grades 9–12, all students should develop understanding of

- **Science as a human endeavor**
- **Nature of scientific knowledge**
- **Historical perspectives**

Fact Sheet 1: Hazardous Substances and Hazardous Waste

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Chemicals affect our everyday lives. They are used to produce almost everything we use, from paper and plastics to medicines and food — and to gasoline, steel, and electronic equipment. More than 70,000 chemicals are used regularly around the world. Some occur naturally in the earth or atmosphere, others are synthetic, or human made. When we use and dispose of them properly, they may enhance our quality of life. But when we use or dispose of them improperly, they can have harmful effects on humans, plants, and animals.

What is hazardous waste?
Even when used properly, many chemicals can still harm human health and the environment. When these hazardous substances are thrown away, they become hazardous waste. Hazardous waste is most often a by-product of a manufacturing process — material left after products are made. Some hazardous waste comes from our homes; our garbage can include such hazardous wastes as old batteries, bug spray cans, and paint thinner. Regardless of the source, unless we dispose of hazardous waste properly, it can create health risks for people and damage the environment.

What kinds of hazardous waste are there?
Most hazardous waste is identified by one or more of its dangerous properties or characteristics: corrosive, ignitable, reactive, or toxic.

Corrosive — A corrosive material can wear away (corrode) or destroy a substance. For example, most acids are corrosives that can eat through metal, burn skin on contact, and give off vapors that burn the eyes.

Ignitable — An ignitable material can burst into flames easily. It poses a fire hazard; can irritate the skin, eyes, and lungs; and may give off harmful vapors. Gasoline, paint, and furniture polish are ignitable.

Reactive — A reactive material can explode or create poisonous gas when combined with other chemicals. For example, chlorine bleach and ammonia are reactive and create a poisonous gas when they come into contact with each other.

Toxic — Toxic materials or substances can poison people and other life. Toxic substances can cause illness and even death if swallowed or absorbed through the skin. Pesticides, weed killers, and many household cleaners are toxic.

Where does hazardous waste go?
Ideally, hazardous waste is reused or recycled. If this is not possible, hazardous waste is safely contained while it is stored, transported, and properly disposed of to prevent an accidental release into the environment. Advances in technology have greatly improved our ability to treat or dispose of hazardous waste in a way that prevents it from harming people or the environment. Typical methods of hazardous waste storage and disposal include surface impoundments (storing it in lined ponds), high temperature incineration (controlled burning), municipal and hazardous waste landfills (burying it in the ground),

and deep well injection (pumping it into underground wells). More promising methods focus on minimizing waste, reusing and recycling chemicals, finding less hazardous alternatives, and using innovative treatment technologies.

What are the dangers of hazardous waste management?
Proper management and control can greatly reduce the dangers of hazardous waste. There are many rules for managing hazardous waste and preventing releases into the environment. Even so, a lot can go wrong when we try to contain hazardous waste. Even the most technologically advanced landfills we build will leak some day. Tanks used for storing petroleum products and other chemicals can leak and catch fire. Underground storage tanks can weaken over time and leak their hazardous contents. Transportation accidents, such as train crashes and overturned trucks, can occur while transporting hazardous substances. There are also cases of intentional and illegal dumping of hazardous waste in sewer systems, abandoned warehouses, or ditches in remote areas to avoid the costs and rules of safe disposal.

How can hazardous waste affect us?
When hazardous wastes are released in the air, water, or on the land they can spread, contaminating even more of the environment and posing greater threats to our health. For example, when rain falls on soil at a waste site, it can carry hazardous waste deeper into the ground and the underlying groundwater. If a very small amount of a hazardous substance is released, it may become diluted to the point where it will not cause injury. A hazardous substance can cause injury or death to a person, plant, or animal if

- A large amount is released at one time
- A small amount is released many times at the same place
- The substance does not become diluted
- The substance is very toxic (for example, arsenic)

Coming into contact with a substance is called an exposure. The effects of exposure depend on

- How the substance is used and disposed of
- Who is exposed to it
- The concentration, or dose, of exposure
- How someone is exposed
- How long or how often someone is exposed

Humans, plants, and animals can be exposed to hazardous substances through inhalation, ingestion, or dermal (skin) exposure.

> **Inhalation** — We can breathe vapors from hazardous liquids or even from contaminated water while taking a shower.
>
> **Ingestion** — We can eat fish, fruits and vegetables, or meat that has been contaminated through exposure to hazardous substances. Also, small children often eat soil or household materials that may be contaminated, such as paint chips containing lead. Probably the most common type of exposure is drinking contaminated water.

Dermal exposure — A substance can come into direct contact with (and be absorbed by) our skin.

Exposures can be either acute or chronic. An acute exposure is a single exposure to a hazardous substance for a short time. Health symptoms may appear immediately after exposure; for example, the death of a fly when covered with bug spray or a burn on your arm when exposed to a strong acid (such as from a leaking battery).

Chronic exposure occurs over a much longer period of time, usually with repeated exposures in smaller amounts. For example, people who lived near Love Canal, a leaking hazardous waste dump, did not notice the health effects of their chronic exposure for several years. Chronic health effects are typically illnesses or injuries that take a long time to develop, such as cancer, liver failure, or slowed growth and development.

One reason chronic exposure to even tiny amounts of hazardous substances can lead to harm is bioaccumulation. Some substances are absorbed and stay in our bodies rather than being excreted. They accumulate and cause harm over time.

Reference

1. U.S. Environmental Protection Agency. Hazardous substances and hazardous waste [online]. 2007. [cited 2008 June 18]. Available from URL: http://www.epa.gov/superfund/students/clas_act/haz-ed/ff_01.htm

Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste

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After reading **Fact Sheet 1: Hazardous Substances and Hazardous Waste**, answer the following questions with your group members. Be prepared to participate in class-wide discussion in approximately 20 minutes.

1. What household chemicals do people have in their homes or garages that are hazardous and that could become hazardous waste?

2. Do you think you or your family contributes to the hazardous waste problem? If so, how?

3. What problems could you, your family, and the community face as a result of being exposed to hazardous waste?

4. What businesses in your community do you think might use hazardous materials?

5. What are some ways hazardous waste problems can be prevented? Which of these things can you do?

Reference

1. U.S. Environmental Protection Agency. Hazardous substances and hazardous waste [online]. 2007. [cited 2008 June 18]. Available from URL: http://www.epa.gov/superfund/students/clas_act/haz-ed/ff_01.htm

Questions: Fact Sheet 1: Hazardous Substances and Hazardous Waste ANSWER KEY

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1. What household chemicals do people have in their homes or garages that are hazardous and that could become hazardous waste?

   Answers will vary.

2. Do you think you or your family contributes to the hazardous waste problem? If so, how?

   Students should respond with a yes. Answers will vary as to how they contribute.

3. What problems could you, your family, and the community face as a result of being exposed to hazardous waste?

   Answers will vary.

4. What businesses in your community do you think might use hazardous materials?

   Answers will vary depending on individual communities.

5. What are some ways hazardous waste problems can be prevented? Which of these things can you do?

   Answers will vary.

Reference

1. U.S. Environmental Protection Agency. Hazardous substances and hazardous waste [online]. 2007. [cited 2008 June 18]. Available from URL: http://www.epa.gov/superfund/students/clas_act/haz-ed/ff_01.htm

Fact Sheet 2: Pollution Prevention

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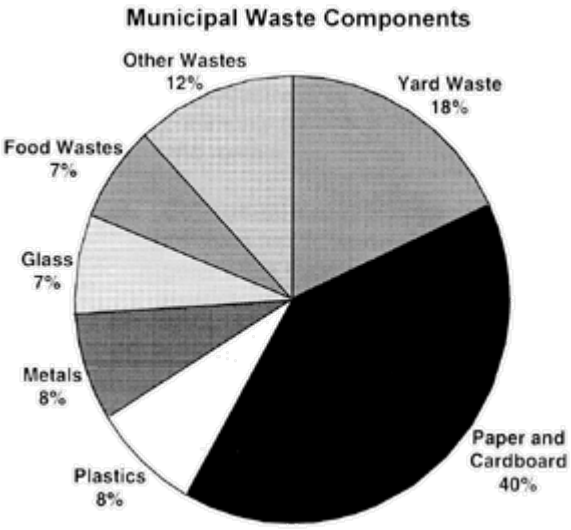

Pollution Prevention

We can't make the problems caused by the waste we produce go away by burying it in landfills. Reducing the problems our waste causes involves reducing how much waste we generate, and recycling the wastes we produce. Source reduction and recycling can reduce the amount of waste filling limited and expensive landfill space. EPA's recycling and source reduction efforts focus on wastes in three areas: municipal solid wastes, industrial hazardous wastes, and household wastes.

Municipal solid waste

Municipal solid waste is generated in every place we live, work, or play — hospitals, houses, schools, businesses, football stadiums, and more. The garbage in municipal landfills consists of yard waste like grass clippings and tree branches, paper and cardboard, plastics, metals, glass, food, and other wastes. In 1990 Americans recycled or composted about 17 percent of the municipal waste they generated, and that figure is even higher today. But even though we recycle more, we also throw more away. That's why it is important to recycle, compost, reduce the amount of packaging used in the products we buy, and make products that last longer. Waste we avoid producing or that is reused is waste we don't have to dispose of yet. Important types of waste prevention include composting, recycling, source reduction, and waste-to-energy incineration.

Composting yard waste allows materials such as grass clippings and fallen leaves to decompose naturally into valuable mulch (organic matter for gardening) instead of burying them in a landfill.

Recycling collects and uses a waste product in making a new product. Recycled aluminum cans, for example, can be used to make new cans.

Source reduction is cutting the amount of waste produced in the first place by reducing the amount of hazardous substances in products, eliminating wasteful packaging, and making products last longer. Source reduction requires manufacturers to make less wasteful products and consumers to actively purchase them.

Waste-to-energy incineration burns municipal waste to generate steam for electricity. Waste-to-energy plants can decrease waste volume by 60 to 90 percent, while recovering energy from discarded products.

Industrial Hazardous Waste

Why should industries reduce waste? The biggest incentive for industries to reduce the amount of waste they produce is that disposing of hazardous wastes is getting more and more expensive. When companies produce less waste, their disposal costs are lower. Companies may also profit from selling or saving recovered materials. Industries can reduce the amount of waste they produce in many ways: manufacturing process changes, source separation, recycling, raw material substitution, and product substitution.

Manufacturing process changes involve either eliminating a process that produces a hazardous waste or changing the process so that it produces little or no hazardous waste. For example, many industrial operations involve applying paint. One way to reduce paint-related hazardous waste is to use low-toxicity paints, such as those that are water-based. Another way is to save excess paint and reuse it.

Source separation refers to preventing hazardous waste from coming into contact with nonhazardous waste. It is the cheapest and easiest way to reduce hazardous waste. Source separation reduces costs for disposal, handling, and transportation and it is widely used by industry. A good example is avoiding contamination of a large amount of water by using another method to clean hazardous materials from machines or products instead of washing them.

Recycling, also referred to as recovery and reuse, is common in industry. Recycling removes a substance from a waste and returns it to productive use. Industries commonly recycle solvents, acids, and metals.

Substitution of raw materials involves replacing raw materials that generate a large amount of hazardous waste with those that generate little or no waste. Manufacturers can substantially reduce waste volume through substitution. Industry often substitutes recycled products for raw natural resources. For example, a manufacturer can use recycled aluminum cans instead of aluminum ore in making new cans. Not only can recycled materials be cheaper than raw materials, but their use creates more demand for recycled products.

Product substitution involves finding non-hazardous substitutes for materials and products used routinely in homes and businesses. For example, by using concrete posts instead of creosote-preserved wood posts in construction, builders can prevent hazardous creosote from leaching into the surrounding soil or groundwater.

Household Hazardous Waste

Some work around the home may require products that contain hazardous components. These commonly used products include certain paints, cleaners, stains and varnishes, car batteries, motor oil, and pesticides. When disposed of, these products become household hazardous waste.

Americans generate 1.6 million tons of household hazardous waste a year. Household hazardous waste is sometimes disposed of improperly when it is poured down the drain, onto the ground, or into storm sewers, or by being put in the trash. Some household hazardous waste can injure sanitation workers, contaminate wastewater treatment systems, or leak out of landfills into groundwater.

One way to reduce problems from household hazardous waste is to use nonhazardous or less hazardous compounds. People can do this by learning about alternative products that are available and choosing those that are less toxic. If you must use products with hazardous components, use only the amount you need. Leftover products can be shared with neighbors; donated to a business, charity, or government agency; or given to a household hazardous waste collection program.

Recycling is an economical and environmentally sound way to handle some types of household hazardous waste, such as used car batteries and motor oil. Auto parts stores and service stations often accept used car batteries and used oil for recycling. Because household hazardous waste can be dangerous, you should always use, store, and dispose of materials containing hazardous waste safely. To prevent accidents, follow disposal instructions on the label and dispose of these products through a local collection program, if possible. More than 3,000 collection programs for household hazardous waste currently operate in the United States.

Reference

1. U.S. Environmental Protection Agency, Superfund for Teachers and Students, Pollution Prevention Fact Flash. [online]. 2008 [cited 2008 June 18]. Available from URL: http://www.epa.gov/superfund/students/clas_act/haz-ed/ff_07.htm

Hazardous Substances and Hazardous Wastes Data Collection Form

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Product Name	Product Use	Hazardous Waste Category (Toxic, Reactive, Ignitable, Corrosive)	Estimated Volume Remaining

Reference

1. U.S. Environmental Protection Agency, Superfund for Teachers and Students, Hazardous Substances Collection form. [online]. 2008. [cited 2008 June 18]. Available at URL: http://www.epa.gov/superfund/students/clas_act/haz-ed/act10frm.htm

Chemicals in the Household

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CHEMICAL PRODUCTS	HAZARDOUS INGREDIENTS	POSSIBLE ALTERNATIVES AND HINTS
Toilet Cleaners	• Muriatic (hydrochloric) acid • Oxalic acid • Paradichlorobenzene • Calcium hypochlorite	Toilet brush and baking soda; mild detergent; vinegar soak for tub and sink fixtures; avoid skin and breathing fumes.
Drain Cleaners	• Sodium or potassium hydroxide • Sodium hypochloride	Plunger; flush drain with ¼ cup baking soda and vinegar; avoid skin contact and breathing fumes.
Bleach Cleaners	• Sodium or potassium hydroxide • Hydrogen peroxide • Sodium or calcium hypochlorite	½ cup white vinegar or baking soda for laundry; avoid skin contact and breathing fumes.
Dishwashing detergent	• Chlorine surfactants	1 part borax to 1 part baking soda; handle all cleaning solutions with care.
Ammonia-based cleaners (all purpose ethanol cleaners)	• Ammonia	Vinegar and salt water mix for surfaces; baking soda and water.
Glass cleaners	• Ammonia • Naphthalene	Wash windows with 1/4 to ½ cup white vinegar to 1 quart warm water, rub dry with newspaper.
Fabric softener	• Ammonia	1 cup white vinegar or ¼ cup baking soda in final rinse water.
Air fresheners	• Cresol • Phenol • Formaldehyde	Open box of baking soda or dish of vanilla; simmer cloves; open windows or use exhaust fans.
Laundry detergent	• Surfactants	Avoid breathing powder.
Mothballs	• Naphthalene • Paradichlorobenzene	Cedar chips; newspapers; lavender, flowers, or other aromatic herbs and spices.
Rug and upholstery cleaners	• Naphthalene • Paradichlorobenzene • Oxalic acid • Diethylene glycol	Baking soda on rug, then vacuum.

Floor and furniture polish	• Diethylene glycol • Petroleum distillates • Nitrobenzene • Mineral spirits	1 part lemon oil, 2 parts olive/ vegetable oil; vegetable oil soap.
Furniture strippers	• Acetone • Methyl ethyl • Ketone alcohols • Xylene • Toluene • Methylene chloride	Equal portions of boiled linseed oil, turpentine, and vinegar with steel wool; sandpaper or heatgun; use in well-ventilated areas or outdoors; handle all solvents with care.
Stains/finishes	• Mineral spirits • Glycol ethers • Ketones • Halogenated hydrocarbons • Naphtha • Xylene • Toluene	Natural earth pigment finishes; use in well ventilated areas or outdoors; handle all dyes and paints with care.
Enamel or oil-based paints	• Pigments • Aliphatic hydrocarbons	Water-based paints if appropriate; always use in well-ventilated areas.
Latex paint	• Mercury	Handle all paints with care.
Antifreeze	• Ethylene glycol	Clean up all spills.
Automobile batteries	• Sulfuric acid • Lead	Bring old batteries to recycling center; avoid skin contact; wash spills with plenty of water.
Automobile lubricants (transmission and brake fluids, used oils)	• Hydrocarbons (benzene) • Mineral oils • Glycol ethers • Heavy metals	Seal used oil in plastic container and bring to recycling service station.

Notes: The listed alternatives are offered as options and are not represented as recommended courses of action. Several listed alternatives are also potentially hazardous and can cause harm if handled improperly. Various commercial products which fall into the product categories listed here may not contain all of the listed chemical constituents.

Reference

U.S. Environmental Protection Agency, Gulf of Mexico Project: Chemicals in the Household. [online]. 2008. [cited 2008 June 18]. Available from URL: http://www.epa.gov/reg4gmpo/edresources/chem_h.html