



Household Hazardous Waste Disposal, Service Learning Project

Source: Los Angeles Unified School District

General Information:

Grade Level: 9

Subject: Social Studies

Background Information:

See Environmental Protection Agency (EPA) information at the end of the document.

Project Description:

While studying the effects of industrialization on the environment, students will launch a campaign to get other students to safely dispose of household hazardous products from their home. Students will research the ill effects of throwing away or dumping such products down drains. They will create posters that show common household products that are considered hazardous waste. The posters will list the locations of government agencies and environmental groups that will safely dispose of these products. The students will make public announcements encouraging students to safely dispose of household hazardous waste.

Community Need(s):

Hazardous waste disposal is becoming a serious problem in most communities. Students can encourage other students to dispose of these goods in a safe manner by telling them the effects of careless waste disposal and letting them know where these products can be taken.

Potential Community Partner(s):

Genesee County Drain Commissioner's Office

Michigan State University Extension – Genesee County

Genesee County Health Department

Content/Skill(s):

History/Social Science

Language Arts

Project Components:

- Students will identify problems that resulted from early industrialization.
- Students will determine what are the most common household products that might be considered hazardous waste.
- Students list the most common household products that are considered hazardous.
- Students research the effects of discarding hazardous household products.
- Students will decide the best way to inform students of the dangers of carelessly disposing of these products.
- Students research which government agencies and environmental organizations dispose of household hazardous waste.

- Students will design posters showing products and listing locations for their safe disposal and write public announcements.
- Students will determine the best locations for posters and make announcements.

Reflection Prompts:

- Write an essay assessing the effectiveness of your campaign.
- What hazardous products are used in your home?
- Are your hazardous products in their original containers, with labels?
- Do you read and follow directions on labels?
- Are your hazardous products stored in a safe place?
- Are you using any safer alternatives to hazardous products?
- If not, what safer alternatives could you be using?
- How is HHW disposed of at your home?

Outcomes:

- Students will be able to explain how industrialization led to problems of waste disposal.
- Students will display an understanding of the dangers of careless disposal of hazardous waste by creating posters and announcements encouraging fellow students to act responsibly.
- Students will exhibit their ability to research a topic by identifying agencies that safely dispose of hazardous waste.
- Students will demonstrate their ability to communicate clearly by presenting public address announcements that clearly state the dangers of hazardous waste and encourage students to dispose of such waste in a safe manner.

Accommodations/Support for Diverse Learners:

- Appropriate tasks should be assigned to all students.
- Students should be encouraged to work collaboratively and respect the talents of each of the members of their group.
- Locations should be accessible. When not available, alternative sites should be sought.
- Each group member should have equal opportunities to make significant contributions to the project.

EPA HOUSEHOLD HAZARDOUS WASTE REDUCTION
POLLUTION PREVENTION EDUCATION TOOLBOX: Tools for Helping Teachers Integrate
Concepts in the Classroom
 United States Environmental Protection Agency
 EPA-905-F-97-011 August 1997

WHAT IS HOUSEHOLD HAZARDOUS WASTE?

If you walk around your garage, kitchen, bathroom, or workshop, you'll probably find hazardous materials or products you and your family use every day. Hazardous materials that can no longer be used become household hazardous waste (HHW). HHW includes hazardous materials such as household cleaners, paints, paint thinners, motor oils, gasoline, and pesticides. HHW may pose a threat to human health or the environment if it is not disposed of properly. HHW poses a threat because it exhibits one or more of the following characteristics:

1. **Toxic:** Poisonous materials like pesticides and expired medicines can harm various organs when swallowed, inhaled, or absorbed through the skin. Some toxic materials can also cause cancer.
2. **Corrosive:** Materials like battery acid and bleach can dissolve other materials, including metals. Corrosive materials can cause severe burns to skin, eyes, and other tissues.
3. **Ignitable:** Flammable materials like gasoline and paint thinner catch fire very easily, sometimes with just a little extra heat or a small spark. Ignited materials can cause severe burns.
4. **Reactive:** Unstable materials can explode or give off poisonous gases when mixed with water or other materials (for example, mixing bleach and ammonia).

Typically, about 1 percent of all waste generated in the average American household is hazardous. The average household generates about 30 pounds (about the weight of a medium-sized dog) of HHW per year, for an annual national total of about 1.6 million tons. The types and percentages of HHW in our daily garbage are shown below:

Household Hazardous Waste	Percent in our daily garbage
Household maintenance items (paint, thinners, glues)	36.6%
Household batteries	18.6%
Personal care products (nail polish and remover, hair spray)	12.1%
Cleaners	11.5%
Automotive-maintenance products (grease, oil)	10.5%
Pesticides, pet supplies, and fertilizers	4.1%
Hobbies/Other (pool chemicals, lighter fluid)	3.4%
Pharmaceuticals	3.2%

WHY IS HOUSEHOLD HAZARDOUS WASTE REDUCTION IMPORTANT?

Hazardous materials are found in almost every home. We use products like the ones in the pie chart in our cars, yards, and even on ourselves. HHW and other hazardous materials that are not handled properly at home can be dangerous, especially to young children and pets. In addition, when HHW is not disposed of properly, it can be dangerous for people and the environment. For example, if HHW is combined with your household trash, trash haulers or sanitation workers can

be injured from explosions, fumes, or fires. If HHW is dumped on the ground or poured into sewers, storm water can wash it into streams, lakes, and rivers. Many cities, including Chicago, get their drinking water from these sources. In other cases, HHW may seep down through the ground until it reaches aquifers, which are underground sources of water, for communities that get their drinking water from wells. When the aquifers get polluted, drinking water may no longer be drinkable, or it may be more difficult to treat water to safe drinking levels. Plants and animals that live in or near the streams, lakes, and rivers can also be harmed from HHW in the water.

HOW CAN POLLUTION PREVENTION HELP YOU?

Neighborhood collection days allow HHW to be disposed of properly. However, the key is to prevent HHW generation in the first place. The best way to do this is to use non-hazardous products, but there are other ways to reduce HHW. The following four concepts can help you evaluate your household practices and identify ways to reduce the impact of HHW from your home:

Changing What You Use

- Read labels on the products you use and ask yourself, "Do I really need to use this product?" Safer alternatives may exist. For example, you could use water-based (latex) paint instead of oil-based paint, compost instead of chemical fertilizers, cedar chips instead of mothballs, or boric acid instead of commercial ant and roach killers.

Changing What You Do

- Think about what you do in your home that generates HHW and ask yourself, "Is there a safer way I can be doing this?" For example, you could use sandpaper or a heat gun instead of chemical paint strippers or a plunger instead of a chemical drain cleaner.
- If you must use hazardous products, read and follow the specific instructions on labels. Most products provide instructions for use and proper disposal.
- Buy hazardous products only in the quantity you need and use the product up entirely; consider how you will dispose of unused portions of a hazardous product before you purchase it.
- Make sure you don't use too much of a product. More is not necessarily better. In fact, using more material than necessary costs you money and may be more hazardous for you or the environment.
- If they are still in useable condition, reuse hazardous products and recycle what can no longer be used. You can also share hazardous products you cannot use with a responsible friend or neighbor that needs the products.

Improving Your Housekeeping

- Store hazardous products according to the instructions on labels.
- Unless the containers are leaking, always keep hazardous products in their original containers. The containers are designed specifically for the products.
- Immediately clean up any spills or leaks according to the instructions on labels.
- Make sure the containers always have readable labels. If a label comes off or can no longer be read, make a new label with a permanent marker.

Educating Yourself and Others

- Share your knowledge and ideas regarding HHW reduction with your family and friends.
- Read and learn more about other alternatives to using hazardous products.

For more information: <http://www.epa.gov/teachers/waste.htm>