Your Toxic Trash

Teacher's Guide

An entertaining and provocative public television special on the growing problem of household hazardous waste.

Produced by

KERA

Dallas Fort Worth Denton

Underwritten by

SEARS

PHILLIPS 66

American Airlines

A NATURAL COMMITMENT

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Sears, Phillips and American Airlines share a common interest in the preservation of the environment. Each works individually and collectively with other research and educational organizations and institutions to promote the well-being of our universe. Their educational activities are directed toward the development of science curricula for all school levels and the dissemination of all research findings into the educational process.

Producing Station

KERA-TV
3000 Harry Hines Boulevard
Dallas, Texas 75201

At KERA, we believe in the power of television to influence the way we live. We have a long-standing commitment to face the tough issues and search for viable solutions. As a provocative, eye-opening look at one way we relate to the environment, YOUR TOXIC TRASH is an important part of that commitment.

Introduction

As Americans, we're so accustomed to using chemicals that we hardly think about it. We clean our houses with detergents, disinfectants and furniture polish. We spray pesticides and paint inside our homes and outdoors. We use fertilizers, antifreeze and brake fluids in our yards and garages.

These chemicals keep our houses clean and freshly painted, our yards green and bug-free, and our cars running. Most of all, they're convenient, and they make our lives easier.

The problem is that many of them are hazardous chemicals. They're easy to buy and use — but storing them is dangerous, and safely disposing of them is hard. If they're flushed down the drain or taken to landfills, they can poison our water supply and our soil.

So what do we do with the half-empty paint cans, the leftover pesticides and the assorted other chemicals most of us store in our houses, garages and workshops? YOUR TOXIC TRASH, an entertaining and provocative public television program premiering Wednesday, September 15, at 8:30 p.m. ET (check local listings) on PBS, brings home the growing problem of the hazardous products most of us use.

YOUR TOXIC TRASH, hosted by Ed Begley Jr., examines the chemical products we buy so casually and the dangers they hold for us now and in the future. Even more important, it offers steps that each of us can take to help solve the problem of hazardous household waste.

The program contains information that will be particularly helpful for high school students in social studies and science classes. Because it features a quiz format, YOUR TOXIC TRASH can be used very effectively by teachers. Its eight questions can be the basis for students' lab demonstrations, interviews with experts and field reports.

PROGRAM SCHEDULING

YOUR TOXIC TRASH will premiere Wednesday, September 15, at 8:30 p.m. ET on PBS. Because broadcasting times can vary, please check your local listings carefully.

TAPING AND PURCHASING INFORMATION

You have the right to tape the original broadcast of the program and play it for instructional purposes. The program is available on VHS videocassette for use in schools and libraries. If you need more information on ordering cassettes, please write to the following:

YOUR TOXIC TRASH VIDEO
KERA-TV
3000 Harry Hines Boulevard
Dallas, Texas
75201

In This Guide

This teacher's guide, which was specially designed to accompany YOUR TOXIC TRASH, will enhance the program's effect on teachers and students alike. Included in this guide are the following:

Objectives that provide teachers with measurable goals.

A **Vocabulary** that defines unfamiliar terms or phrases in the program.

A **Program Overview** that gives background information and a synopsis of the 30-minute program.

Tips for **Before, During and After Viewing the Program** that suggest some approaches for talking to students about the program's theme. These tips don't require technical knowledge of chemistry or the environment, and they can be used by teachers of any discipline or specialty. Included are discussion questions that help students understand the program's most important points.

A **Student Activities Checklist** that can be reproduced and given to students to take home and fill out.

Student Projects that give students ideas for the in-depth study of toxic trash and what they can do about it. These projects are designed to be photocopied and distributed to the class.

A **Bibliography** that focuses on related books and other publications that teachers and students may want to read.

The **Quiz** questions and answers.

Objectives

Using this program, students will

- Realize the dangers of the chemicals we use every day in our homes and yards;
- Understand the difficulties of disposing of these chemicals in ways that don't harm other people or the environment; and
- Learn steps that they, their families, schools and communities can take to safely dispose of these dangerous chemicals.

Vocabulary

Alternative Products: Safe, non-toxic products that can be used in place of hazardous products. For example, using a mixture of vinegar and water to clean windows.

Household Hazardous Waste: Products that fall into one of these four categories: (1) toxic or poisonous; (2) flammable; (3) reactive (causing chemical reactions with other substances); or (4) corrosive (a product that can eat away at metal and harm the skin and eyes).

Landfills: Sites where waste is collected. There are two types of landfills: (1) industrial, lined sites that are designed to handle hazardous wastes; and (2) municipal sites that are developed for household and small business wastes. Newer municipal landfills are lined to protect ground water, but older ones are not.

Leachate: Water, which is often contaminated with hazardous chemicals, that seeps out of the bottoms of landfills.

Nontoxic: A term that is generally used for a substance that is not harmful to people if it is used correctly. Some "nontoxic" products do contain toxic ingredients, but at low concentrations that do not harm people if used correctly.

Recycling: The process that allows leftover material to be collected and used to make new products. Recycling can also involve using an old waste in a new way, such as "recycling" flammable waste into fuel for factory furnaces (waste-to-energy recycling).

Toxic: A substance that is poisonous to people or animals.

Producer's Note:

Times Beach/Love Canal: Times Beach refers to a Missouri community evacuated by the government because the topsoil was contaminated with dioxin. Love Canal refers to a neighborhood near Buffalo, New York, where homes were built on top of an old hazardous waste landfill.

Program Overview

Every year, American homes dispose of one million tons of hazardous waste. Even though household products contain small amounts of the same chemicals that factories must send to hazardous waste centers, household waste is not regulated by the federal government. As one expert says, most American houses are "small Love Canals" — a reference to an American neighborhood blighted by hazardous wastes.

If this hazardous waste is thrown into the garbage, where it mixes with other substances, it can explode, catch fire or create deadly gases. Even if it safely reaches a landfill, the landfill may not be properly built or maintained. Because of these dangers, hundreds of communities collect and recycle hazardous household waste every year.

Dramatic environmental disasters like the *Exxon Valdez* oil spill receive enormous publicity. But, every year Americans collectively empty more used motor oil into the ground, sewers and landfills than the *Exxon Valdez* spilled in one single incident. Many auto-parts chain stores and oil companies are now helping consumers recycle their motor oil.

Other toxic trash, such as paint, is also being successfully recycled. At the same time, some companies are trying to make their products safer and "environment-friendly."

YOUR TOXIC TRASH helps viewers to be aware of the deadly chemicals most of us have in our house and how to dispose of them safely. It offers solutions that have worked in many communities, such as hazardous waste collection days and recycling efforts. It also suggests how all of us can use alternative products that are healthier for human and animal life and for the environment.

Before Viewing The Program

Write "How dangerous is the trash at your house?" on the chalkboard. Talk to the students about the chemical products — like disinfectants, paint and pesticides — their families use every day. Does anyone read the product labels? Are the products kept in their original containers and stored safely? How are they discarded? Are they emptied down the drain, poured into the sewer or thrown into the trash?

Tell the students that the program they're going to see, YOUR TOXIC TRASH, will focus on hazardous household products that are a part of our everyday lives. The program will show them how individuals and communities can protect their environment and well-being by safely disposing of these products and by using less-dangerous alternative products.

During The Program

YOUR TOXIC TRASH features eight quiz questions. After each question, stop or pause the videotape and lead the students in a discussion about how they would answer the question. Then, turn the videotape back on to learn the correct answer.

ORDERING INFORMATION

YOUR TOXIC TRASH is available on videocassette for home, educational or institutional use. For home use, individuals can purchase the program for $24.95 includes shipping and handling. The cost to educational institutions is $12.

To order, write or call:
YOUR TOXIC TRASH VIDEO
KERA-TV
3000 Harry Hines Boulevard
Dallas, Texas 75201
214-740-9238

After Viewing The Program

Encourage your students to talk about the program and their reactions to it. You can use these questions to stimulate more discussion:

1. Why have Americans become so casual about all the chemicals in our homes and garages? Are we paying too great a price for their convenience by endangering our safety and our future?

2. What can you do at your house to make your family more aware of the dangers of toxic products? How often does your family throw out toxic products that you wouldn't want mixed in with your drinking water?

3. Why have we taken such a hard line with businesses and factories about their hazardous waste when individual households are so careless about their own toxic trash? Should there be controls? If so, for whom and how should they be enforced?

4. What is your community doing to dispose of hazardous household waste? If there is a collection site, does your family use it? If not, why? Is there anything you can do to change their minds?

5. If we, as individuals and a society, don't respond to the growing problem of hazardous waste, what are the possible consequences? What explanation would you give to your children someday about why none of us took action?

Student Activity Checklist

HOW TOXIC IS YOUR HOME?

Take an inventory of your house, yard, garage and workshop. How many of the following do you find?

IN THE HOME

- ☐ drain cleaners ___
- ☐ oven cleaners ___
- ☐ disinfectants ___
- ☐ furniture polish ___
- ☐ metal polish ___
- ☐ arts and crafts supplies ___
- ☐ chlorine or ammonia-based cleaners ___
- ☐ nail polish/nail polish remover ___
- ☐ photo chemicals ___
- ☐ floor cleaners ___
- ☐ flea spray for pets ___

IN THE YARD

- ☐ weed killer ___
- ☐ insect and rodent killers ___
- ☐ pool chemicals ___
- ☐ charcoal lighter fluid ___
- ☐ mosquito repellent ___

IN THE GARAGE

- ☐ antifreeze ___
- ☐ motor oil ___
- ☐ brake fluid ___
- ☐ car wax and polish ___
- ☐ engine degreaser ___
- ☐ carburetor cleaner ___
- ☐ creosote ___
- ☐ gasoline ___
- ☐ car batteries ___

IN THE WORKSHOP

- ☐ rust preventives ___
- ☐ wood preservatives ___
- ☐ wood strippers ___
- ☐ wood stains ___
- ☐ paint thinner ___
- ☐ paint ___
- ☐ solvents ___
- ☐ degreasers ___
- ☐ sealants ___

WHAT KIND OF WASTE IS IT?

Beside each product write in the number that represents the kind of waste it is.

1) toxic or poisonous
2) flammable
3) reactive (causing reactions with other substances)
4) corrosive (a product that can eat away at metal and harm the skin and eyes)

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Suggested Student Activity Projects

To learn more about hazardous household waste and what we can do about it, have students choose one or more of the following assignments:

1. Do some comparison shopping at your local grocery store and area health-food stores for products that will, for example, polish your furniture or keep outdoor pests away. Report back to the class on what kinds of alternatives to toxic products are available, where they can bought and how expensive they are.

2. Do you know how your local trash is transported and where it goes? Find out. If it's taken to a landfill, research the age of the landfill, how it was built and how well it is maintained. Also, what kinds of products should not be taken to the landfill?

3. If possible, interview the department head and workers at your local sanitation department. Have they ever been endangered by the toxic trash you and your neighbors throw out? Do they worry about their own and their co-workers' health? What waste products are particular problems for them and why?

4. Find out whether your community has a program to collect hazardous household waste, or if your community has banned some types of hazardous waste from its landfill.

    a. If it has a collection program, interview the program's leaders to find out how effective it has been, what percentage of households participate in it, what the monthly weight of the toxic trash is, how expensive the program is for the community, and whether the community wants to better publicize the program to get more households involved.

    b. If your community doesn't have a collection program, find out which governing body should be approached and how you can get on its agenda. With other students, organize a presentation to make to your community leaders to persuade them to sponsor a collection program. Make your presentation as compelling as possible, using oral and written arguments about the dangers of hazardous household waste, the benefits of a collection program, and the potential costs, liability protection and personnel needed to run such a program.

5. You and a classmate take on different roles and debate. One of you can be a citizen concerned about the environment and the other can be an industry/municipal government official. Here are some issues you can debate: Why should a company have to change its products? What are the customers' responsibilities in disposing of toxic waste? What obligation does a community government have to its constituents? Does the technology exist for industries to change their products? Would it be economical for the business and customer if the products were changed? Are nontoxic alternatives as effective as existing products?

6. Find out how you can submit an "op-ed" piece to your local newspaper about hazardous household waste and the need for proper disposal. Then, write a short, persuasive article urging some kind of action by individuals or the community, and send it in.

7. Organize an advertising campaign to make others aware of hazardous household waste. Talk to advertising experts and psychologists to find out what would be the most effective themes — e.g., guilt, moral responsibility — to make individuals more responsive to the environment.

8. Try the following experiments:

   a. Show how oil and water do not mix. Put a small amount of dirty used motor oil in a container of clean water to show how oil slicks form.

   b. Have a race to see if alternative cleaners work as well as hazardous products. Example: Use boiling water and baking soda instead of silver polish to remove tarnish.

   c. Create a simple filtration demonstration to show how landfill leachate can seep through soil to contaminate drinking water sources.

9. Create a tongue-in-cheek poster that incorporates humor to urge people to use alternative products instead of toxic chemicals.

10. Find out whether nearby grade school principals would allow you to make a presentation to their students about hazardous household waste. If you get their permission, write and design a presentation that these younger students can understand and will be motivated by.

11. Take an inventory of your home. (See the **Student Activity Checklist** on page 9) Math application: Use the combined amounts to illustrate the volume of toxic trash that could be in the city systems if it was all thrown away during a day, a week and a month. Then, multiply by the number of homes in the city, state and country.

Less than one percent of household trash is considered to be hazardous, but that one percent equals about one million tons of toxic trash per year.

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Selected Bibliography

INDUSTRY SOURCES

Chemical Specialties Manufacturers Association, 1913 Eye St., N.W., Washington, D.C. 20006. Publishes brochures on disposal of home cleaners and pesticides.

National Paint & Coatings Association, 1500 Rhode Island Ave., N.W., Washington, D.C. 20005-5597. Publishes brochures on disposal of paints.

National Oil Recyclers Association, 12429 Cedar Rd, Ste. 26, Cleveland Heights, OH 44106. Publishes material on recycling used motor oil.

GOVERNMENT SOURCE

Office of Solid Waste, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. Provides grants for communities to plan the creation of a household hazardous waste collection program and funds an annual convention of HHW experts from across the United States. Publishes *The Consumer Handbook for Reducing Solid Waste* (EPA530—Y92-003), which contains information on household hazardous waste and a list of EPA publications on household hazardous waste.

NONPROFIT PUBLIC INTEREST GROUP SOURCES

Waste Watch Center, 16 Haverhill Street, Andover, MA 01810. Funded by the EPA to coordinate national efforts to establish household hazardous waste collection programs. Publishes the quarterly "Household Hazardous Waste Management News."

League of Women Voters of Massachusetts, 133 Portland St., Boston, MA 02114. Distributes videotapes and kits on how to begin a household hazardous waste collection program.

Environmental Hazards Management Institute, P.O. Box 932, Durham, NH 03824. Distributes the "Household Hazardous Waste Wheel" that identifies household hazardous substances and suggests safe disposal practices and alternative products.

PUBLICATIONS

Rubbish! The Archaeology of Garbage. By William Rathje and Cullen Murphy. (1992) HarperCollins Publishers, 10 East 53rd, New York, NY 10022

Note: KERA-TV and PBS do not endorse any of the groups on this list, nor warrant or guarantee the accuracy or the sufficiency of the information provided by these groups. Some of these groups provide materials free of charge, while others charge a fee.

Your Toxic Trash Quiz

1. **True or False:** Federal law allows homeowners to throw away the same chemicals that factories must send to special hazardous waste facilities.

2. **Which chemicals catch fire if mixed together in the trash?**
   a. pool chlorine and car brake fluid
   b. ammonia and suntan lotion
   c. charcoal lighter and bleach

3. **What's the biggest source of lead in U.S. landfills?**
   a. cans of lead-based paint
   b. old water pipes and radiators
   c. car batteries
   d. newspapers

4. **True or False:** More used motor oil is dumped on the ground, tossed into landfills and poured into sewers every year than was released during the *Exxon Valdez* oil spill in Alaska.

5. **What should you do with old gasoline?**
   a. mix it with kerosene and use it in camping stoves
   b. dilute each gallon of gas with 10 gallons of water and pour it down the sewer
   c. pour the gas onto concrete and allow it to evaporate
   d. none of the above

6. **Yes or No:** Can these products be recycled?
   - ☐ ☐ household batteries
   - ☐ ☐ car batteries
   - ☐ ☐ used motor oil
   - ☐ ☐ auto antifreeze
   - ☐ ☐ pesticides
   - ☐ ☐ toilet bowl cleaner

7. **What should you do with cans of old paint?**
   a. allow the paint to harden and place it in the trash
   b. mix the paint together and use it as primer
   c. donate the paint to a theater group or charity
   d. take the paint to a household hazardous waste center

8. **What does the word "nontoxic" on a label mean?**
   a. the product contains no toxic ingredients
   b. the product does not harm the environment
   c. the product does not harm people when used as directed
   d. all of the above

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Answers

1. **True.** Many household products contain the same chemicals used by factories, but Environmental Protection Agency (EPA) rules do not cover waste thrown away by households. (Some states have developed stricter rules.) Less than one percent of household waste is hazardous, but nationwide this adds up to about one million tons of toxic trash per year.

2. **a. Pool chlorine and car brake fluid.** A wide variety of home chemicals ignite when combined in the trash, and others release deadly fumes when mixed together. Carefully read the disposal information on product labels.

3. **c. Car batteries.** The EPA estimates more than 60 percent of the lead in landfills comes from car batteries. (Newspapers were a major source of lead until 1975, when publishers removed lead from the black ink.)

4. **True.** Do-it-yourself mechanics dump about 94 million gallons of used oil every year in the U.S., nearly nine times the amount that was spilled by the *Exxon Valdez* in Alaska.

5. **d. None of the above.** Bring old gasoline to a fuel recycling center or a household hazardous waste collection site. Mixing different chemicals together is dangerous. Pouring hazardous chemicals down the drain causes environmental problems at sewage treatment plants. Evaporating gasoline on the pavement is dangerous and leaves a toxic residue that rain washes into nearby streams.

6. **Car batteries, motor oil and antifreeze can be recycled.** Most types of household batteries, pesticides and prescription medicine cannot be recycled but should be brought to a household hazardous waste center for proper disposal. Products like toilet bowl cleaner should be completely used up before the empty container is discarded.

7. **b. Mix together, c. donate and d. take to the collection center are all correct.** Some paints contain toxins that should not be placed in landfills. Mixing different types of paint results in a low-quality blend that is used as primer. Many theater groups and charities welcome donations of paint. Household hazardous waste centers can recycle paint into high-quality blends, although paint recycling is difficult.

8. **c. No harm during use.** "nontoxic" generally means a product does not harm people when used as directed. It does not mean that a product is completely free of toxic ingredients or that it poses no environmental threat if carelessly discarded.

Toxic Trash Tips

1. Buy a non-hazardous product if possible.
2. Buy only what you need to do the job.
3. Carefully read product labels.
4. Use up what you buy or give the remainder to someone who can use it.
5. Dispose of toxic trash in a responsible way.

Ed Begley Jr., host of YOUR TOXIC TRASH, is best known for his portrayal of Dr. Victor Ehrlich on the acclaimed television series "St. Elsewhere," for which he received Emmy nominations for each of the series' six seasons. He is currently set to star in the new NBC series "Winnetka Road." Begley's feature film credits include "She-Devil," "Scenes From the Class Struggle in Beverly Hills," "Eating Raoul," "Accidental Tourist" and "Dark Horse," as well as the soon-to-be-released "Even Cowgirls Get the Blues" with Uma Thurman and "Pagemaster" with MacCauley Culkin. A dedicated environmentalist, Begley serves on the boards of nearly a dozen national and local environmental groups.

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