



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

# Lesson Plans for Teachers

[www.tceq.state.tx.us/assistance/education.html](http://www.tceq.state.tx.us/assistance/education.html)

## Household Hazardous Waste Identification

### Grade level:

- ◆ Fourth grade.

### Sample TEKS for 4th grade: Science:

- ◆ 4.1A, B
- ◆ 4.2A, B, C, D, E
- ◆ 4.3A, B

### Social Studies:

- ◆ 4.9A - C

### Objectives:

Students will be able to:

- Learn about reduce, reuse, and recycle.
- Identify household hazardous products.
- Learn about less hazardous alternatives.
- Complete an inventory of hazardous materials in a typical household.

### Materials:

- ◆ worksheets
- ◆ baking soda
- ◆ vinegar
- ◆ lemons
- ◆ borax

### Background:

Almost every household in Texas has some household hazardous product(s) in it. Paints, poison, pesticides, cleaning agents, degreasers, automotive products, and many more items which have labels having the signal words warning, danger, and caution can be classified as hazardous household materials. These items become household hazardous wastes when they are no longer usable or wanted for the use they were intended.

When these materials are disposed of in the trash, contaminants can leak through the landfill and into the groundwater supply where many cities obtain their drinking water. When these materials are poured into the storm sewer or on the ground, they can contaminate drinking water supplies in our streams and lakes. (Empty containers which are not recyclable can be placed into the trash.)

The problem of having hazardous household wastes can be lessened by using the reduce, reuse and recycle principals. Households can reduce the amount of waste they have by buying only the amount they need to do the job and reading the label thoroughly before purchasing a product. Households can reuse hazardous household materials by giving materials to a neighbor who can use the materials as indicated on the label. Household hazardous wastes such as used motor oil, batteries, and paint can be recycled at collection centers. Less hazardous alternatives can work just as well as commercial hazardous materials but for a fraction of the cost and to no danger to our health or the environment.

For unusable or unrecyclable household hazardous wastes that have already been created, the best disposal method is to bring these materials into a household hazardous waste collection event. Materials brought into these collections are properly disposed of at a hazardous waste disposal facility such as an incinerator or properly designed landfill. E-mail the TCEQ at [educate@tceq.state.tx.us](mailto:educate@tceq.state.tx.us) for more information on HHW in your area.

**Procedure:**

List hazardous household products in each room of a typical home. Some examples are given.

Kitchen:

- drain openers
- oven cleaners
- bleach cleaners
- bug sprays
- abrasive cleaners or powders
- disinfectants
- ammonia-based cleaners
- household batteries

Laundry room:

- spot removers
- bleach cleaners

Garage:

- Paints
- paint and varnish remover
- rust proof coatings
- thinners and turpentine
- wood preservatives
- stains and varnishes
- auto batteries
- used motor oil
- brake fluid
- transmission fluids
- antifreeze
- pesticides
- fertilizers
- insecticides
- ant killers
- weed killers

**Bathroom:**

- drain openers
- deodorizers
- disinfectants
- abrasive cleaners
- prescription drugs
- mirror cleaners
- fingernail polish and removers

**Workshop:**

- hobby chemicals
- photographic chemicals
- woodworking chemicals
- degreasers

**Other rooms:**

- household batteries
- rug and upholstery cleaners
- furniture polish
- moth balls
- pool chemicals

**Less hazardous alternatives Activity:**

Match the less hazardous alternative in the first list with the job that it will do in the second list. (Some alternatives may be used more than once).

**Less Hazardous Alternatives**

1. baking soda
2. lemons
3. vinegar, salt and water
4. salt and boiling water
5. Borax
6. salt and cold water
7. corn meal and Borax
8. lemon oil and mineral oil
9. olive oil
10. cedar chips
11. corn meal

**Cleaning Jobs**

- A. bathroom cleaner
- B. blood stain remover
- C. room deodorizer
- D. furniture polish
- E. instead of moth balls
- F. abrasive scouring powder

- G. rug cleaner
- H. all purpose cleaner
- I. drain opener
- J. sink cleaner
- K. carpet cleaner

**Answers To Less Hazardous Alternatives**

- Baking soda - a, c, f, h, I, j
- Lemons - c
- Vinegar, salt and water - h
- Salt and boiling water - I
- Borax - a, f, h, j
- Salt and cold water - b
- Corn meal and borax - g, k
- Lemon oil and mineral oil - d
- Olive oil - d
- Cedar chips - e
- Corn meal - g, k

Submitted by: Ingrid Dierlam-McDonald, TCEQ staff