



CONTAMINANT CRIME SCENE ANALYSIS

Objectives:

The student will be able to:

- ◆ Identify substances and activities within a household that contribute to water pollution
- ◆ Identify safe cleaning alternatives for commercial cleaning products

Suggested Grade Level:
6-8

Subjects:
Chemistry, Language Arts

Time:
2 class periods

- Materials:**
- Writing supplies
 - Student sheets

BACKGROUND INFORMATION

Pollutants that come from homes often originate in the kitchen, bathroom, or garage. Some chemicals such as oil, paint thinner, and pesticides often find their way down the drain and into the water system. Household cleansers, such as drain cleaner, oven cleaner, and tarnish remover have caustic chemicals that lower water quality. These products have chemical ingredients that may not be removed during water treatment. A partial solution would be to avoid putting these chemicals directly into water in the first place. Hazardous household wastes can be taken to approved disposal sites. Fortunately, there are non-toxic alternatives that can be used instead of some household cleansers. Items such as baking soda and vinegar can be used in different combinations to clean different areas of the home. Baking soda can be used in place of a room deodorizer. Boiling water, vinegar, and baking soda can be used with a plunger to take the place of a toxic drain cleaner. Vinegar wiped with newspaper can be used as a window cleaner. Scouring powder can be replaced by baking soda and vinegar. Salt, baking soda, and a piece of aluminum foil in warm water can take the place of a tarnish remover.

TERMS

alternative: a chance to choose between two or more possibilities; one of the two or more possible choices.

caution: a warning against danger.

disposal: a disposing of or getting rid of something, as in the disposal of waste material.

pollution prevention: preventing the creation of pollutants or reducing the amount created at the source of generation, as well as protecting natural resources through conservation or increased efficiency in the use of energy, water, or other materials.

ADVANCE PREPARATION

A. Prepare two copies of the “Contaminant Survey” sheet and one copy of the “Alternative Cleaning Products” sheet for each student.

B. Make an overhead of the “House Cutaway.”

P R O C E D U R E

I. Setting the stage

A. Divide class into teams. Have at least two products per team on hand. Have each student fill out one contaminant survey sheet using the two team products. Have the students work in teams to find the information.

B. Assign a different area of the house to each team: kitchen, garage, garden/yard, bathroom, basement, and laundry room.

C. Displaying the overhead of the house, brainstorm with the class a list of possible products used in each location.

II. Activity

A. Have each team fill in the remaining contaminant survey sheet with the products brainstormed for their area of the house.

B. Have students collect data from their own homes. Explain that some products will not have an entry in each category.

C. Have the students meet in their teams and combine their lists into a master list for their area.

D. Have the students use the “Safe Alternatives to Toxic Home Cleaners” handout to fill in the “Alternative Cleaning Products” sheet for the cleaning products they found.

III. Follow-Up

A. Review data with students:


1. What products did they find?

2. How do we use these products?

3. How do these products affect water? (This may be on the label under the caution statement.)

IV. Extensions

A. Have the students keep track of how many times they use alternative cleaning products.



B. Let the students share this project with their families at home. Encourage them to show their families their home surveys and the list of alternative products that could be used.

C. Have the students watch television advertisements and check the products advertised for environmental or physical safety.

D. Have the students make their own handbooks to take home and refer to as needed.

R E S O U R C E S

Gralla, Preston, *How the Environment Works*, Ziff-Davis Press, Emeryville, California, 1994.

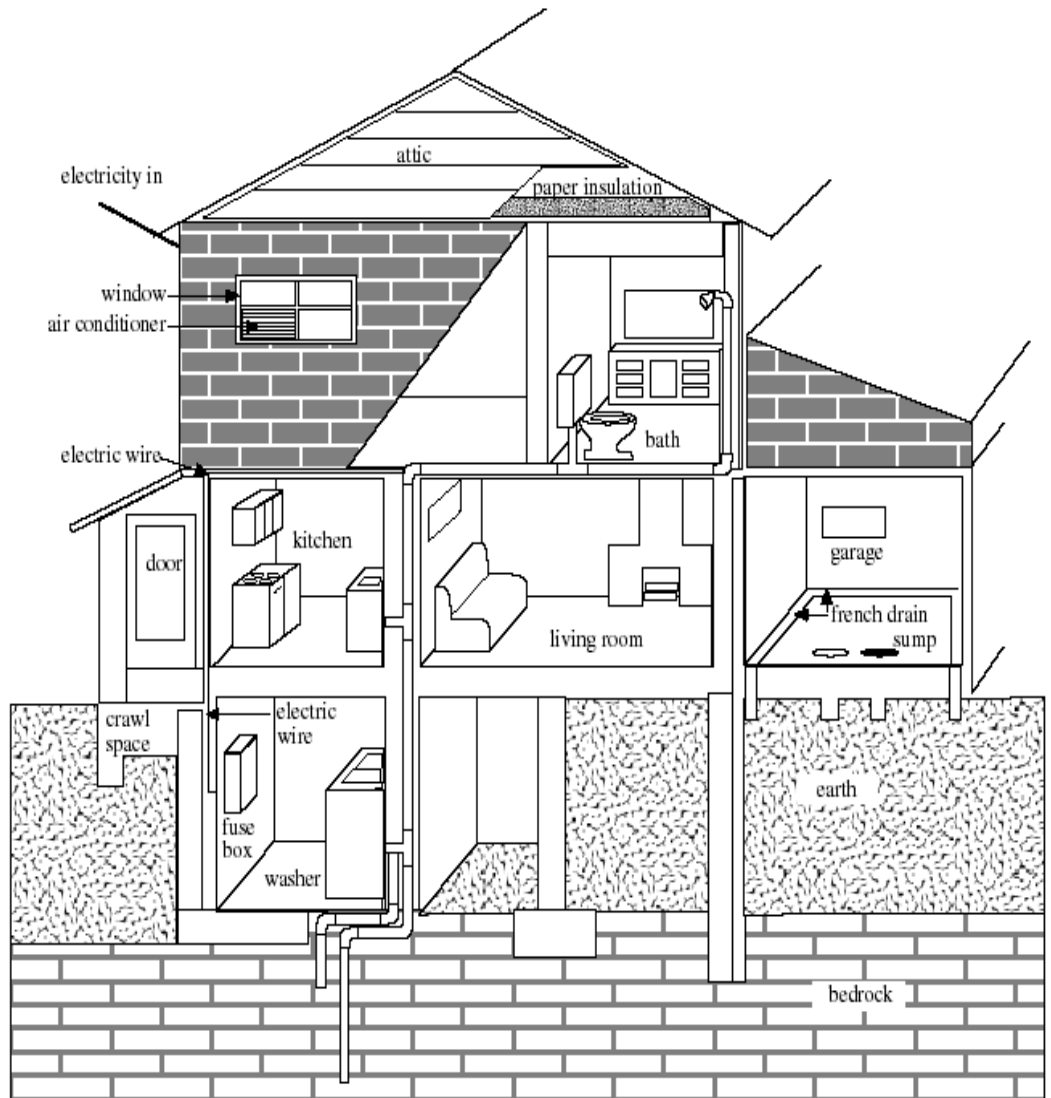
Household Hazardous Waste Wheel. Available from Legacy, Inc. 800 - 240 - 5115. *Project Wet: Curriculum and Activity Guide*, Watercourse and Western Regional Environmental Education Council, 1995. Obtain from *Project Wet: Water Education for Teachers*, 201 Culbertson Hall, Montana State University, Bozeman, MT 59717-0057 (Fax: 406-994-1919; e-mail: rwwet@msu.oscs.montana.edu).

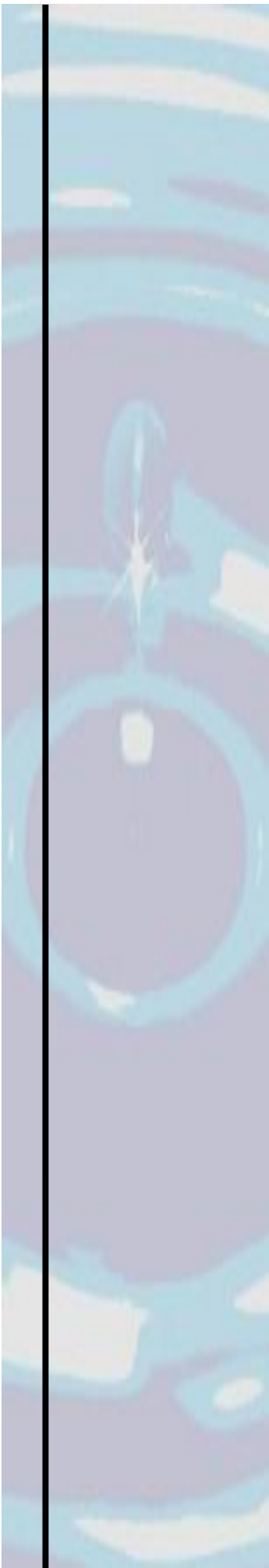
Thank you to the Environmental Protection Agency *Water Sourcebook* for this activity!

http://water.epa.gov/learn/kids/drinkingwater/wsb_index.cfm

STUDENT SHEET

Contaminant Scavenger Hunt





STUDENT SHEET

CONTAMINANT SURVEY

CONTAMINANT SURVEY

STUDENT SHEET

6-8

Product Name	Four Main Ingredients	Container Plastic Glass Paper	Caution Statement	First Aid	Disposal Procedure

STUDENT SHEET

ALTERNATIVE CLEANING PRODUCTS

PRODUCT	SAFE ALTERNATIVE INGREDIENTS