

LESSON 3: Proper Disposal of Household Hazardous Waste

LESSON'S CONCEPT

Many household products are hazardous, both when they are used and when they are disposed of. They must be separated carefully from regular waste. Most household hazardous waste can be taken to a collection site, where some of the hazardous waste can be recycled. Inappropriate disposal of household hazardous waste can harm the environment and people.

PURPOSE

Students will learn how household hazardous waste should be disposed of.

OVERVIEW

In this lesson students will:

- Observe a variety of empty containers and some labels of household hazardous waste.
- Color and put together a coloring book about household hazardous waste.
- Play a relay game to learn appropriate disposal methods for various household products.
- Listen to a speaker from the local household hazardous waste management site and write a thank you letter to the speaker.
- Design posters that show the proper disposal of household hazardous waste.

CORRELATIONS TO CALIFORNIA'S CONTENT STANDARDS AND FRAMEWORKS

- By listening to a speaker, students acquire information on how to properly manage household hazardous waste.
 - Students "retell, paraphrase, and explain what has been said by a speaker." (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 20)
 - Students "determine the purpose or purposes of listening (e.g., to get information, to solve problems, for enjoyment)." (*English–Language Arts Content Standards for California Public Schools,*

Kindergarten Through Grade Twelve, page 15)

- People "need to exercise judgment, care, and planning . . . in their practices of disposing of wastewater and materials." (*Science Framework*, page 125)
- Students "acquire information by listening, observing, using community resources, and reading various forms of literature and primary and secondary source materials." (*History–Social Science Framework*, page 26)
- Students read words concerning household hazardous waste, and they color a corresponding picture. They also write thank you letters to a speaker who visited their class.
 - "Students know about letters, words, and sounds. They apply this knowledge to read simple sentences." (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 1)
 - Students write "personal and formal letters, thank-you notes, and invitations . . . (that) include the date, proper salutation, body, closing, and signature." (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 18)
- Students make posters that show the proper disposal of household hazardous waste.
 - "Students create original artworks based on personal experiences or responses." (*Visual and Performing Arts*

Framework; Visual Art: Creative Expression Component, Goal 4, page 101)

- "Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept . . . students will . . . communicate observations orally and in drawings." (*Science Content Standards, Grades K–12*; Kindergarten; Investigation and Experimentation, Standard 4e)

SCIENTIFIC THINKING PROCESSES

observing, communicating, ordering, comparing, classifying, relating

TIME

60 minutes to prepare for the lesson and 90 minutes to implement the lesson.

VOCABULARY

household hazardous waste, pollution
(Select additional words that students are curious about in this lesson.)

PREPARATION

- ___ 1. Read the "Background Information for the Teacher" at the end of this lesson.
- ___ 2. Identify agencies and organizations that deal with the proper disposal of hazardous household products. Call the local recycling center, household hazardous waste (HHW) coordinator, or health department to find out about disposal procedures and other related issues, including locations of local household hazardous waste collection sites. You can also "Earth's 911" at 1-800-CLEANUP or visit the Web site at www.1800cleanup.org for information on household hazardous waste and referrals to local program coordinators.
- ___ 3. Invite a speaker to talk about disposing waste safely and recycling household hazardous waste.
- ___ 4. If you have obtained information packets concerning the disposal of household hazardous waste in your community, prepare copies for students to take home.
- ___ 5. Duplicate sheets from "Safe House, Safe Me!" (pages 229–234) to provide one set for each group of six students (so that each student will have one sheet).
- ___ 6. Do "a" and/or "b."
 - ___ a. Collect ten containers from non-hazardous products (e.g., food and beverage containers, like cereal boxes, milk cartons, gallon plastic jugs). In half of these add water or paper to represent the presence of the product inside

the container.

If you haven't already done so, collect at least ten empty and rinsed out household hazardous product containers that have some type of warning labels. You might be able to get some of these from the school's custodian and some from your home.

- Obtain at least one one-gallon plastic water or milk jug. To that container, add water and label it "used oil."
 - Pour about a cup of water into half of the ten household hazardous waste containers. These will represent containers that still contain the original product.
 - For added safety, tape all lids on all containers.
 - Label half of the nonhazardous and hazardous product containers with "Team #1" and the other half with "Team #2."
- ___ b. If you do not wish to gather the containers, you can use the cards printed in this lesson. Duplicate and cut apart two sets of the two pages of "Cards Representing Various Products" in this lesson (pages 235 and 236). Label the first set "Team #1" and the second set "Team #2."
- ___ 7. Prepare the playing area. This area can be in the classroom or outside.

- Designate one area as the “Household Hazardous Waste (HHW) Collection Site” by placing a plastic tarp or sheet on the floor or ground.
- Within the HHW Collection Site, provide a box for HHW that can be recycled. Label this box “HHW for Recycling.” Also provide a box for HHW that can be reused. Label this box “HHW for Reusing.”
- Designate an area on the other side of the playing field or classroom as a “Regular (Nonhazardous) Household Waste Collection Site.”
- Within that site designate a box for reusing, a box recycling, and a box for a landfill. Label the boxes “Reuse,” “Recycle,” “To Landfill.”

MATERIALS

- ___ At least ten containers from nonhazardous products (half containing some product simulated by using water or paper)
- ___ At least ten containers from household hazardous products with warning labels (half containing a cup of water)
- ___ One motor oil container with water and a label indicating “used oil”
- ___ If not using containers, you will need “Cards Representing Various Products.”
- ___ Copies of pages from “Safe House, Safe Me!” (a set for each group of six students)
- ___ Scissors
- ___ Colored pencils, crayons, or markers
- ___ Plastic tarp or sheet
- ___ Five boxes (or five hula hoops)

PRE-ACTIVITY QUESTIONS

A. Ask students:

- How do we usually handle our regular (nonhazardous) waste? *We recycle it; we reuse it; we throw it in the garbage can.*
- What do reduce, reuse, and recycle have to do with trash? *Reducing how much you use so you won't have as much trash to throw away; reusing things, recycling things like aluminum cans.*

B. With the pile of ten empty and rinsed out containers that have some type of warning labels placed in front of the students, lead a discussion:

- Each container has some type of warning information. Is this warning for the contents inside or for the container itself? *The contents inside.*
- If the container is totally empty, what can be done with it? *Maybe it can be recycled, or it will need to go to the trash can. We can also read the label to see whether it says anything about proper disposal of the empty container. We can look for the recycle symbol and plastic numbers.*
- How can we find out whether the empty container can be recycled? *Find out what our community recycles by calling someone who works for a garbage company.*
- When do people want to dispose of household hazardous waste? *When they no longer want it.*
- Could they give a household hazardous product in its original container to a neighbor to use; for example, toilet bowl cleaner? *Yes. Tell students that it is recommended that the entire contents in the container of a household hazardous product be used up. If a family no longer wants to use it and someone else wants to use it properly, then the family can give it to someone else.*
- If a family cannot give away a container that still has some household hazardous product in it (and since the family no longer wants it, and it is now considered household hazardous waste), what can the family do? *Don't know; take it to a special place; throw it away. If someone says to put it in the garbage can, tell students that it is against the law to put household hazardous waste, even if it is in a container, in the garbage can. If the container breaks or bursts when it is compacted, the product could injure the person who collects the garbage or someone working at the landfill. The container could also leak from the landfill into surrounding areas.*

PROCEDURE

- A. Separate the class into groups of six students. Provide each group with a set of copied pages to color from the “Safe House, Safe Me!” coloring pages in this lesson.
- Provide colored pencils, crayons, or markers to students.
 - Ask that each student complete one page.
 - Once students have completed coloring, have each student read his or her page with the group.
 - Have each group compile its colored pages into a booklet, which can be stapled.
 - As a class, discuss what information we learned from the booklet.
 - Tell students that some household hazardous waste can be recycled. In our community these wastes include used motor oil, antifreeze, and batteries. (*Note:* Use the actual list from your community’s household hazardous waste facility.) These should never be poured out on the ground or in storm drains, because they can pollute the environment. They should never be thrown into the garbage can, because they can injure workers who collect garbage or work at the landfill and can also pollute the landfill.

Note: Consider allowing one student from each group to take home the booklet overnight to share with family members. Then the booklet will need to be brought back for another student to take home. If this set-up will not work for your students, then consider providing a set of pages from “Safe House, Safe Me!” especially pages 1, 2, 3, and 5 (these can be copied on both sides of the paper to conserve paper), for students to color at home.

Note: You will need to adjust the following game to the grade level of your students.

- B. If you have collected at least ten containers from nonhazardous products and ten empty and rinsed out containers (from hazardous products) that have some type of warning labels, do #1. If you did not gather the containers, do #2.
1. Make sure that you have poured about a cup of water into half of the ten empty

containers that have some type of warning labels. These will represent containers that still contain the original products. For added safety, tape all lids on all containers.

- Half of the nonhazardous containers should also have something in them, such as waste or paper to represent food.
 - Make sure that you have labeled half of the nonhazardous and hazardous product containers with “Team #1” and the other half with “Team #2.”
2. If you do not wish to gather the containers, you can use the “Cards Representing Various Products” printed in this lesson. You might want to have students color these.
 - Make sure that you have made two sets of cards with “Team #1” written on each one of one set of cards and “Team #2” written on each one on the other set of cards.
 - The cards can be laminated and kept to use with other classes.

Note: This game can be organized not as a relay but by using a point system based on accuracy. Place the disposal boxes close together and have students deposit their containers or cards in the appropriate disposal box. Give teams points for placing items in the correct disposal box. Another variation is to have the teacher ask for an item for a particular disposal box, and groups have to send someone with the item to the teacher. This can be played for points or for prizes.

- C. Lead students to the playing area, or point it out to them if the area is in the classroom.
1. Indicate the location of the simulated “Household Hazardous Waste (HHW) Collection Site.”
 2. Point out the box within the “HHW Collection Site” for household hazardous waste that can be reused and the box for household hazardous waste that can be recycled. Any household hazardous waste that cannot be reused or recycled should be placed in a pile on the tarp.
 3. Show students the “Regular (Nonhazardous) Household Waste Collection Site,” which should be on the other side of the playing field or classroom.

4. Point out the boxes for reusing, recycling, and the landfill within the “Regular (Nonhazardous) Household Waste Collection Site.”
- D. Tell students that the object of the game is for students to place their containers or cards in the appropriate area, based on what is accepted and recycled in their community.
- If using real containers, students will need to notice those that are empty and those that are not.
 - If using cards, ask students to assume that all containers contain some product for the first game. Then play a second round of the game and have students assume that all containers are empty.

Safety Note: Emphasize to students that they will pretend to be adults taking the household hazardous waste to a proper household hazardous waste collection site in their community. They should not touch these products at home unless approved by their parents or guardians.

- E. Separate students into two teams: Team #1 and Team #2.
- Give a set of containers or cards to each team.
 - Ask each team to distribute at least one container or card to each student.
 - Ask the two teams of students to stand in the middle between the “Household Hazardous Waste Collection Site” and the “Regular (Nonhazardous) Household Waste Collection Site.”

Note: Students might not know where various waste should go, so encourage them to guess. The labels might give them a clue. The discussion at the end of the game is important for students to learn where each waste should have gone.

- F. Play the game in a relay fashion, but without having students run.
- One student from each team will look at his or her container or card and walk to the appropriate disposal site, placing the container or card in the appropriate place.
 - These students walk back to their groups, and the next student in line deposits his or her container or card in the appropriate place.

- Emphasize to students that the goal is not speed, but accuracy.
- G. When the relay is over, have students look at each collection site and analyze its contents.
- Are all waste materials in their proper place? Was Team #1 or Team #2 more accurate? (If needed, students will need to refer to what materials are recycled in their community.)
 - Where should some of these items be placed? Ask students to take the items that were not placed in correct containers to the correct containers.
- H. If cards were used in the game, play the game with a second set of cards. If containers were used in the game, consider playing the game with cards.

Note: For additional information and activities on reducing, reusing, and recycling nonhazardous waste, see Unit 2 in the K–3 Module.

- I. If you plan to invite to the class a speaker from the household hazardous waste collection site, do the following:
- Determine with students the purpose(s) for listening to the speaker. *To get information.*
 - Develop a list of questions with students on what to ask the speaker. For example, what happens to the waste that is brought to a household hazardous waste collection center?
 - Have the speaker talk to students about the household hazardous waste recycling and disposal site in the community. Students should learn that the first way to deal with a household hazardous product is to use it all up. Then the container can be recycled or placed in the garbage can (depending on your community’s solid waste management opportunities and the directions, if any, on the container).
 - Show the speaker the actual containers of household hazardous waste that you have collected for this lesson and/or the cards printed in this lesson, and ask the speaker to help students determine the proper disposal for each type of waste.
 - After the speaker is gone, ask students to retell, paraphrase, or explain what was said by the speaker.

- Ask students to draw one thing that they learned from the speaker.
- Have students write thank-you letters to the speaker. Older students should include the date, proper salutation, body, closing, and signature on the thank-you letter. For younger students, combine the writings into one letter to send to the speaker. Some drawings could be included in the letter. For older students, consider sending most or all of their letters to the speaker.

Note: The school's custodian can also speak to the class about how he or she disposes of the containers for chemicals used to clean classrooms.

DISCUSSION/QUESTIONS

- Ask students what the difference is between household hazardous products and household hazardous waste. *Household hazardous products are products that are used at home that could be poisonous or dangerous in other ways. Household hazardous waste is the product you no longer want.* Explain to students that household hazardous waste can also be a used product, such as used motor oil or used batteries. These can be recycled.
- Ask students how the game they played is similar to what happens in their community in terms of household hazardous waste collection.

APPLICATION

- Discuss and, if necessary, teach students how their families can get rid of household hazardous wastes no longer needed in order to limit their harmful effects on the environment and other people. Share with them the information you have found out about household hazardous waste disposal in your community.
- Provide a handout of information on household hazardous waste for students to take home to their families. An example of a letter to parents and other information that applies to your community that you will need to complete this activity are provided at the end of this lesson.
- Ask students to make posters to inform adults of the importance of taking household hazardous waste to the household hazardous waste facility.

- Ask students to write a sentence or two in their journals about what they have learned in this lesson. They can also draw a picture. Have them share their journal entries in small groups. Check each student's writing.

I have learned to read the labels of hazardous products and to keep toxic products on high shelves.

I have learned that we should be very careful of what we touch, eat, and smell and drink. 'Cause you never know something you think is good could be bad to your health.

Submitted by Christina Lucas, second- and third-grade teacher, Baywood Elementary School, San Luis Coastal Unified School District.

RESOURCES

Videos

Hazardous Waste, Whose Problem Is It Anyway? 1989. Available from the Environmental Health Coalition, San Diego (10 minutes).

A class goes to different rooms in a house and looks at the problems of household hazardous products and waste. Discusses the importance of reading labels, storing household hazardous products safely, and disposing household hazardous waste safely.

Peter Paint and Pals, Produced by Creative Edge Communications and City of Chino, 1996.

Cartoon-type characters representing various household hazardous products explain why some household hazardous waste disposal methods are not acceptable and discuss how to dispose properly of household hazardous waste.

Other Resources

Call "Earth's 911" at 1-800-CLEANUP or visit the Web site at www.1800cleanup.org to acquire automated information on locations of recycling centers in your community.

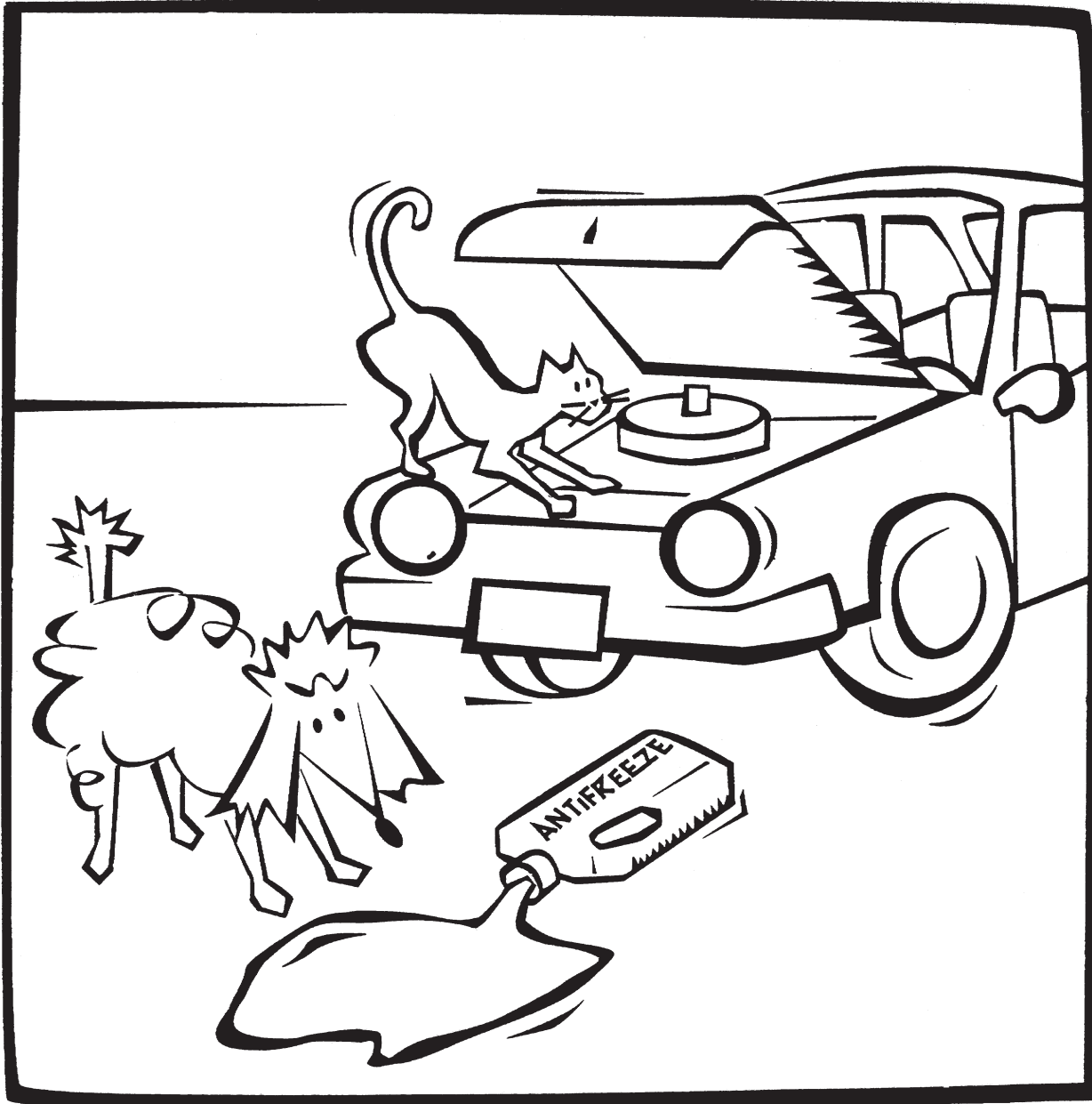
SAFE HOUSE, SAFE ME! (PAGE 1)



K-3 Module
Unit 5

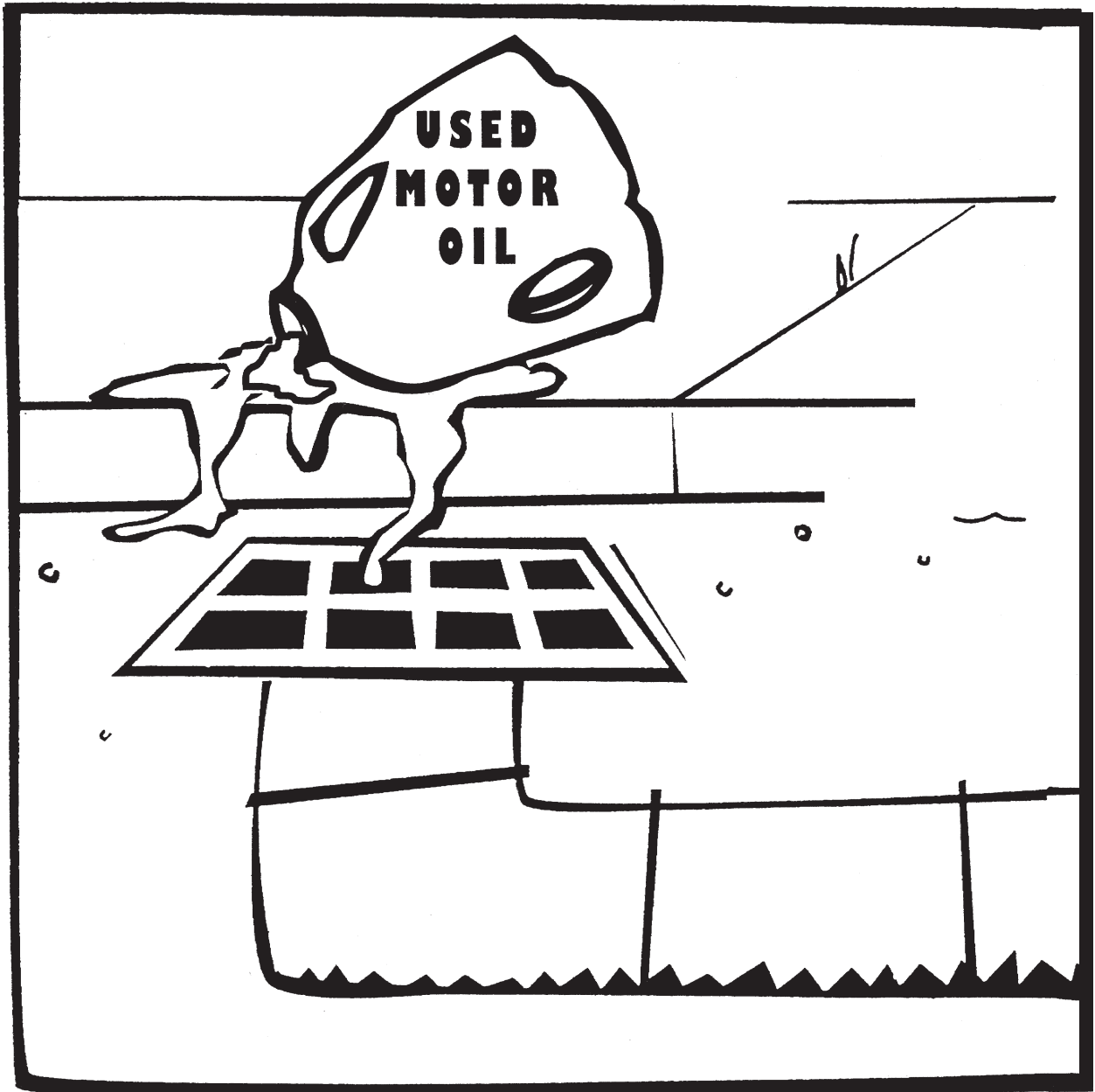
Keep in a safe place.

SAFE HOUSE, SAFE ME!
(PAGE 2)



Antifreeze is poisonous.

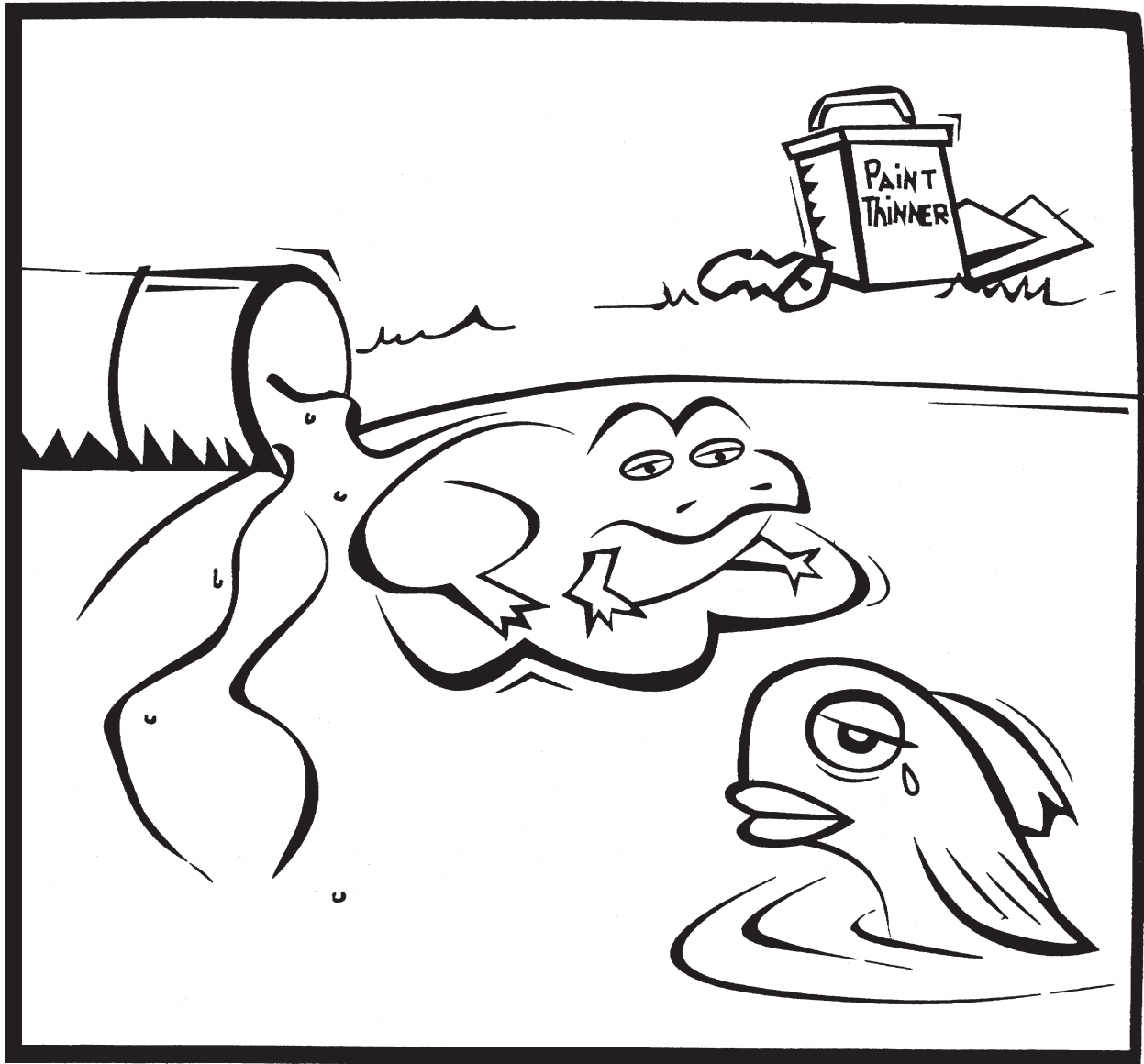
SAFE HOUSE, SAFE ME!
(PAGE 3)



K-3 Module
Unit 5

Do not dump used oil down a storm drain.

SAFE HOUSE, SAFE ME!
(PAGE 4)



Paint thinner is dangerous to animals.

SAFE HOUSE, SAFE ME!
(PAGE 5)



**Recycle old car batteries, leftover latex paint,
and used motor oil.**

Student's Page





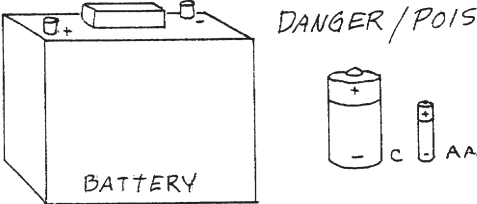


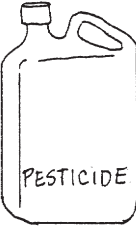

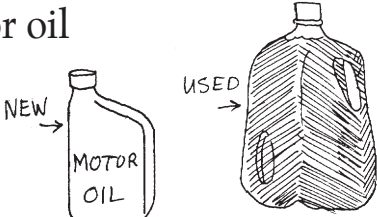
SAFE HOUSE, SAFE ME!
(PAGE 6)



Everybody is safe.

CARDS REPRESENTING VARIOUS PRODUCTS

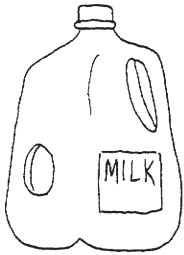

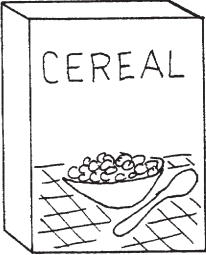

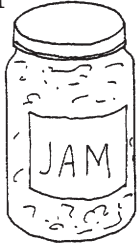
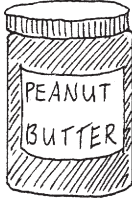




(Household Hazardous Products)

<p>Aerosol can</p>  <p>DANGER: EXTREMELY FLAMMABLE</p>	<p>Fertilizer</p>  <p>CAUTION: CAN BE HAZARDOUS TO HUMANS OR ENVIRONMENT.</p>
<p>Toilet bowl cleaner</p>  <p>DANGER: KEEP OUT OF REACH OF CHILDREN.</p>	<p>Medicine</p>  <p>WARNING: KEEP OUT OF REACH OF CHILDREN.</p>
<p>Battery</p>  <p>DANGER / POISON</p>	<p>Paint</p>  <p>CAUTION: KEEP OUT OF REACH OF CHILDREN.</p>
<p>Window cleaner</p> 	<p>Pesticide</p>  <p>WARNING: HAZARDOUS IF SWALLOWED</p>
<p>Antifreeze</p>  <p>WARNING: HAZARDOUS IF SWALLOWED</p>	<p>Motor oil</p>  <p>DANGER: HARMFUL OR FATAL IF SWALLOWED</p>

K-3 Module
Unit 5

CARDS REPRESENTING VARIOUS PRODUCTS

(Household Nonhazardous Products)

<p>Milk jug</p> 	<p>Banana peel</p> 
<p>Cereal box</p> 	<p>Aluminum soda can</p> 
<p>Glass jar from jam</p> 	<p>Plastic jar from peanut butter</p> 
<p>Soup can</p> 	<p>Plastic 2-liter beverage bottle</p> 
<p>Shampoo bottle</p> 	<p>Box from baking soda</p> 

(Use school's letterhead.)

Dear Parent or Guardian:

Please read the following information with your child:

Our class is studying household hazardous products. Since the safety of children is our highest priority, we have been studying the various kinds of household hazardous products they may encounter, including:

- Aerosol cans
- Automotive products (including used oil and used oil filters)
- Batteries
- Cleaning products
- Fertilizer
- Fluorescent light bulbs
- Fuels
- Medicines
- Paints (including wood preservatives and paint solvents)
- Pesticides

Students have learned that:

- Containers containing any leftover household hazardous products should never be placed in the trash.
- The contents of household hazardous products should never be poured down the drain, on the ground, or into a storm drain.
- The contents of household hazardous products that are no longer wanted by the family that bought them are called household hazardous waste (HHW).
- To protect people and water supplies and to keep our environment from becoming polluted, the community provides a household hazardous waste collection site where you can bring your household hazardous waste.

To increase home safety with household hazardous materials, the California Integrated Waste Management Board suggests the following:

- Buy only what you need and will be able to use up.
- Use the product up.
- Give it to someone who could use it safely.
- Take it to the household hazardous waste disposal site. This is located on

The telephone number to call for information on the proper disposal of household hazardous waste in our community is: _____

Thank you,

BACKGROUND INFORMATION FOR THE TEACHER

Research the types of household hazardous waste collections that are available in your community. Contact the county waste department or environmental health services. Many communities sponsor monthly drop-off events or maintain a permanent disposal location for household hazardous wastes. You can also call “Earth’s 911” at 1-800-CLEANUP or visit the Web site at www.1800cleanup.org for information on household hazardous waste and referrals to local program coordinators.

Household hazardous waste does not belong in a landfill, on the ground, in the gutter, in creeks or other bodies of water because it pollutes the environment. It belongs at a household hazardous waste collection site. Some household hazardous wastes can be recycled. In fact, recycling used motor oil is the only safe and legal option. The following information explains the household hazardous waste disposal options.

Recommendations for Household Hazardous Wastes (HHW)

- Keep all household hazardous products and wastes out of the reach of children and pets.
- Read the label before handling any household chemicals.
- Avoid mixing household wastes together for disposal.
- Avoid putting a hazardous product in a different container.
- Use the product up before recycling or disposing the empty container. (Follow directions on the container’s label on how to dispose properly of the empty container.)
- Call the local county recycling agency, health department, or household hazardous waste coordinator to learn proper disposal and/or recycling/reuse options in your community.
- Take household hazardous waste to a household hazardous waste collection site or event in your community.

Actions to Take Concerning HHW (In the order recommended by

the California Integrated Waste Management Board)

A. Reduce

Identify household hazardous products that can be used less. Consider whether the product is really needed and whether safer alternatives are available.

B. Reuse (In the case of household hazardous waste, reuse can mean “to use up” the product).

Whenever possible use up the product or give it to someone who will use all of it. For example, reuse paint solvents by letting the paint sludge settle and then reuse the solvent. Some charities accept excess paints that they will use. Household hazardous waste collections programs may offer opportunities to reuse items.

C. Recycle

Recycle those household hazardous wastes that can be recycled in your community. Used automobile oil, used oil filters, used antifreeze, used batteries, and leftover paints are the principal household hazardous waste that are recyclable. None of these should ever be poured into storm drains or sewers, because these may be directly connected to streams or other bodies of water and the waste will pollute the water. To find out how and where to recycle used automobile oil, oil filters, and antifreeze, call the county’s recycling or household hazardous waste coordinator or the Environmental Protection Agency’s environmental hotline 1-800-CLEAN-UP. Note that recycling used oil and used oil filters is the **only** legal and environmentally safe way of handling this resource.

D. Safe Disposal

- Many cities and counties have a permanent household hazardous waste collection facility. Some of these household hazardous waste collection facilities are called ABOP, which is an acronym for the four items that are accepted at that facility:
 - Antifreeze
 - Batteries
 - Oil (used motor oil)

- Paint
- Many communities organize household hazardous waste collection events. Call the county recycling or household hazardous waste coordinator for locations of local household hazardous waste collection events.
- Some household hazardous waste collection facilities or household hazardous waste collection events accept all of the following:
 - Aerosol cans
 - Automotive products (including used motor oil and used motor oil filters)
 - Batteries
 - Cleaning products
 - Fertilizer
 - Fluorescent light bulbs

- Fuels
- Medicines
- Paints (including wood preservatives and paint solvents)
- Pesticides
- None of the above products should be placed in a trash can or poured down a drain.
- Most household hazardous waste collection facilities or household hazardous waste collection events do not accept ammunition, explosives, radioactive materials, or infectious wastes.

Note: For more information, see “Appendix B–VI, Household Hazardous Wastes.”



Mendo-Lake HazMobile collects household hazardous waste on specific days throughout the year in Mendocino and Lake counties.

NOTES