

UNIT 10: HAZARDOUS WASTE



VOCABULARY

Corrosive
Hazardous
Safe substitute
Waste

Flammable
Reactive
Toxic

BACKGROUND

Many of the products found in and around your home, work or classroom such as cleaners, paint and pesticide can be HAZARDOUS WASTE. Hazardous means that there is a chance of being injured or harmed when the product is being used, stored or disposed. Hazardous products can cause harm to people, animals and the environment. The characteristics of hazardous materials are flammable, reactive, corrosive and toxic.

A few examples of household hazardous products include:

batteries
flea powder
nail polish

bleach
furniture polish
oven cleaner

disinfectants
mothballs
paint

Hazardous products must be handled and disposed of carefully. Improper disposal of hazardous waste can cause harm to the environment by pollution in rivers, lakes and the sea. Always store hazardous chemicals in their original containers so that handling and disposal instructions on labels can be followed. Store in properly closed containers and in well ventilated places where children and pets cannot reach.

Always try to use the products completely or see if other people can use all of the contents of these hazardous household products.

The activities in this section require close supervision. Please read instructions and notes carefully.

HAZARDOUS WASTE

Materials students may bring from home

plastic gloves
samples of household hazardous products
nail polish, slug bait, glass cleaner, toilet cleaner, hair spray, furniture polish
paper
pens or crayons
scissors

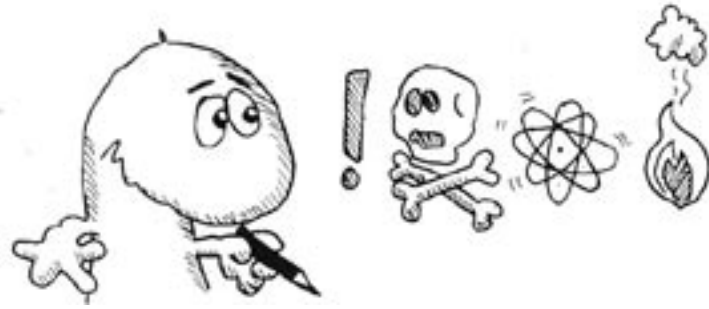
see materials list "Hazards in the House"

sand
gravel
dirt
used glass jar
nail polish



TAKE CARE!

What is Hazardous Waste?



KEY CONCEPT

Some household cleaning products can be classified as hazardous materials. Use and dispose of hazardous materials carefully.

LEARNING OBJECTIVE

Students will learn what household hazardous products are and will be able to recognise common examples of these products.

MATERIALS

- Plastic gloves
- Samples of household hazardous products such as: nail polish, slug bait, laundry detergent, toilet bowl cleaners, hair spray, furniture polish, nail polish remover
- Paper
- Pens or crayons
- Scissors

BACKGROUND INFORMATION

Many of the products found in and around your home, such as cleaners, furniture polish, paint, medicines and car products can be hazardous to you if used in the wrong way.

Hazardous means that the risk of being harmed or injured is present. Hazardous things can make people, animals or the environment sick.

The four types of hazardous products are those that are flammable, reactive, corrosive, or toxic.

These products must be used, stored and disposed of properly.

LEARNING STEPS

1. Discuss the different characteristics of household hazardous products.

Flammable: can easily catch on fire e.g. paint, hairspray, nail polish.

Reactive: can catch on fire, explode or give off dangerous fumes when exposed to water or air e.g. oven cleaner, ammonia mixed with bleach

Corrosive: can burn the eyes and skin or eat away containers, e.g. toilet cleaner, bleach, radiator cleaner.

Toxic: can make you sick immediately or over a period of time e.g. floor cleaner, window cleaner, antifreeze.

2. Show students examples of common household hazardous products. Emphasise that these products can be very dangerous and should not be touched, swallowed or inhaled.

3. Student can design a warning sticker to put on all household hazardous waste products in their homes. Use words like danger, caution or handle with care. Have the students make about 10 stickers.

4. Students take home stickers and ask parents for assistance in marking each household hazardous product in the house.

5. Students should record how many products they marked. What kinds of products were they? Report back to the class.

EXTRA ACTIVITIES



1. Survey Hazards

Conduct a school survey to see who knows what hazardous waste is and what you should do with it. Ask each student to survey 10 other students about what household hazardous products are and what kinds are used in their homes.

2. Design a poster

Design a poster to educate your school or community about the dangers of household hazardous products.

HAZARDS IN THE HOUSE

Household Hazardous Waste

KEY CONCEPT

Safer substitutes can be used instead of some household cleaning products.

LEARNING OBJECTIVES

Students will learn what hazardous waste is, be able to recognise common hazardous waste products, and understand what safe substitute products are.

MATERIALS

Several household cleaning products such as:

- Gloves
- Snail bait
- Laundry detergent
- Room deodorisers
- Glass cleaner
- Furniture polish
- Floor cleaner
- Hair spray
- Scouring powder

Safe Substitute Kit:

- Handful of broken eggshells
- Washing soda
- Lemon juice
- Soft cloths
- Vegetable oil
- Spray bottle
- Baking soda

BACKGROUND INFORMATION

Many of the products found in and around our homes, such as household cleaners, garden chemicals and automotive products, are considered hazardous, that is they have a potential to cause injury or harm if used or disposed of improperly.



Household Hazardous Waste (HHW) product labels:

Caution: be careful when using

Flammable: can catch on fire easily

Reactive: can catch on fire, explode or give off dangerous fumes when exposed to water or air

Corrosive: can burn the eyes or skin

Toxic: can make you sick immediately or over a period of time

People often dispose of these items by throwing them in the rubbish, burning, storing or dumping them down the sink, toilet or storm drain. Improper disposal of hazardous products can pose a hazard to both people and wildlife.

Burying household hazardous waste can cause both soil and groundwater to be contaminated. Burning these wastes can result in air pollution and injuries. Storing indefinitely can potentially cause an accident. Pouring this waste down sinks, toilets or stormwater drains can contaminate waterways.

Gloves should be worn to protect hands while using household hazardous products. Use these products in well a ventilated area. These products should be used completely and the replaced with safer substitutes.

When used completely, household hazardous products can be disposed of in household rubbish.

LEARNING STEPS

1. Explain what household hazardous waste is to the students. Review the definitions of hazardous. (See Background Information.)
2. Students list types of hazardous waste that could be found in their home, garden, laundry or garage. (This could be a homework assignment with parental assistance.)
3. Discuss the safe usage of household hazardous products. (See Background Information.)
4. Using the safe substitute materials listed in the Materials section, have the students create a "Safe Substitutes Cleaning Kit". Use the Safe Substitutes List as a guideline for creating the kit. Include more/less items in your kit if you wish. Make a label for each product detailing what its cleaning uses are.
5. Ask the students to demonstrate the use of the kit to another class. Have the Students try out the kit by cleaning a bench, chair, etc. in the classroom. Make posters or a flyer to educate other students and teachers about the use of safe substitutes.

SPECIAL NOTE

When discussing the use of household hazardous products, always emphasise safe usage and disposal.

EXTRA ACTIVITIES

1. Survey and Sticker It!

Using the following list of household hazardous products do a survey of how many students have these items in their homes.

Have the students make a list of all the products they answered yes to in the survey. Ask them to create a sticker for each of these products warning that they are hazardous and needed to be used and disposed of carefully.

Common household hazardous waste

Pet flea collars
Toilet bowl cleaner
Slug bait
Laundry detergent
Weed killer
Oil
Antifreeze
Brake fluid
Paint
Batteries
Room deodoriser
Oven cleaner
Ant and cockroach killers
Glass cleaner
Furniture polish
Medicines
Pool cleaners
Floor polish
Pesticides

Safe Substitutes

Aerosol sprays

Use non-aerosol, pump-type sprays

Ant control

Sprinkle tartaric acid in front of the ants' path. Ants will not cross over the acid.

Bug spray

Place screens on windows and doors
Try a fly swatter

Chemical fertilisers

Compost
Mulch

Detergents

For dishes use baking soda and liquid soap
For laundry use borax, washing soda or liquid soap

Drain openers

Pour boiling water down the drain

Flea repellent

Feed pets brewer's yeast, vitamin B or garlic tablets (not a lot)

Furniture polish

Mix lemon juice and vegetable oil
Mix white vinegar and vegetable oil

Glass and window cleaners

Use cornstarch and water

Use lemon juice and dry with a soft cloth

Rug cleaner

For spills, clean with sparkling soda and clean cloth

Scouring powders

Use baking soda with a damp cloth

Snail/slug bait

Place a layer of broken eggshells around plants. Snails and slugs will not cross this path.



HOUSEHOLD HAZARDOUS WASTE Proper Disposal



KEY CONCEPT

Household hazardous waste needs to be disposed of with care.

LEARNING OBJECTIVE

Students will understand correct and incorrect disposal methods for household hazardous waste.

MATERIALS

- Sand
- Gravel
- Dirt
- Water
- Used jar
- Nail polish

BACKGROUND INFORMATION

To dispose of means to get rid of or to "throw away". Sometimes, people dispose of hazardous waste unsafely by burning it, storing it or landfilling it before the product has been used completely.

Improper disposal of household hazardous waste can harm both humans and the environment. Thus it is important to understand correct and incorrect disposal methods for these materials.

In the rubbish bin:

Rubbish collectors can be injured by household hazardous waste when they collect rubbish. Products such as pool chemicals can splash in their eyes, causing burning or blindness. Workers at the landfill

can also be harmed if hazardous waste is improperly contained and then disposed of.

Burial: Burying household hazardous waste can cause both soil and groundwater to be contaminated.

Burning: Burning waste can cause air pollution. Many household hazardous products are explosive and can cause serious injury.

Storing: Storing products indefinitely can be an invitation to an accident. Small children are at risk where these items are stored improperly.

Down the drain: Pouring household hazardous waste down a sink or toilet can cause damage to sewage treatment plants by killing the organisms that help to decompose sewerage waste. These chemicals can also contaminate groundwater and waterways.

LEARNING STEPS

1. Review the methods used for disposing of household rubbish. (See Background Information.) Ask the students what effects each method has on the environment.
2. Provide demonstrations for the disposal methods. Here are some suggestions:

Burial: Put sand gravel or dirt in a strainer. Place the strainer over a jar. Pour coloured water onto the material. Have the students record and discuss what happens.

SPECIAL NOTE

Burning: exercise caution during this experiment.

Place a small amount of nail polish on foil or in a bowl. Light a match to it carefully. Ensure that all students are at a safe distance. Have the students record and discuss any reaction and odour.

Storing: Place a cotton ball in coloured water. Squeeze the cotton ball onto a piece of newspaper. Have the students record and discuss what happens.

3. Discuss proper disposal of household hazardous products. Emphasise that these materials should be disposed of in a landfill once they have been completely used.
4. Discuss how students can safely reduce, reuse or recycle household hazardous materials:

Reduce: Use fewer household hazardous products. Choose a safer substitute instead of a harsh chemical to clean the home. See safe substitutes list.

Reuse: Donate your leftover pesticides, cleaning products or paint to a school or church.

Recycle: Used motor oil and car batteries can be recycled in some areas of Auckland. Ring the Enviroline (09) 366 2070 for drop off locations, or contact your local council.

Dispose: The Auckland Regional Council and local councils provide a free mobile collection for household hazardous waste. Phone Enviroline (09) 366 2070 to find out when the next collection will be close to your home or look at www.hazmobile.govt.nz

household hazardous products.

2. Who uses hazardous products?

Conduct a survey of teachers and students to see how many hazardous products are used in the home or garden.

3. Watch out!

We all need to be responsible citizens when disposing of our household wastes. What should we do with broken glass? unused medicines? old garden sprays? lubricating oil? paintbrush cleanings? old car batteries? old roofing iron? building materials? Who do we contact for advice? Ask one or two students to look at www.hazmobile.govt.nz or contact Enviroline (09) 366 2070 to get the answers. Publicise your findings with a poster or school display.

EXTRA ACTIVITIES

1. Hazardous waste news

Produce a newsletter to educate other students, teachers and parents about the safe use and disposal of