



# Miscellaneous

# MISCELLANEOUS

## Dumping is Un-Natural

**SUGGESTED GRADE LEVEL:** 1-3

### **OBJECTIVE:**

Students will understand the negative impact that illegal dumping has on the natural beauty of our state.

### **BACKGROUND:**

Below are some vocabulary words that will be helpful for this lesson.

- ❖ **Illegal dumping** – The disposal of waste at any location that does not have a permit from the New York Department of Environmental Conservation (NYDEC).
- ❖ **Reuse** – The use of a product more than once in its same form for the same purpose or for different purposes.
- ❖ **Recycle** – The process of collecting materials from the waste stream and separating them by type, remaking them into new products and marketing and reusing the materials as new products.
- ❖ **Compost** – The decomposition of organic matter into a product used to enrich or improve consistency of soil for growing plants.

### **MATERIALS:**

Bags of garbage collected specifically for this activity, gloves, trash bags.

### **PROCEDURE:**

1. Plan an outdoor activity (picnic, nature walk, outdoor story-time, etc..) at a nearby park, nature trail, or on the school grounds.
2. Before students arrive, have the garbage placed near picnic tables, play areas, or in other visible areas. Take some out of the bags, spill it around the grounds.
3. Make sure students have to walk, play, and sit down to eat near the unsightly garbage.
4. Note student reactions to the garbage. Explain it is illegal dumping. If they don't want to eat or play in an area that is strewn with illegally dumped wastes, neither will others. This could deter tourists or other visitors from the area, as well as diminish property values.
5. Ask: Where should waste go? Waste should ultimately end up in a permitted sanitary landfill. However, the waste may first go from the household, school or business to a transfer station and then on to a landfill. Many counties in New York do not have a landfill, so the waste may have to travel some distance to its final destination in a landfill.
6. Ask: What can be done to make our natural areas that have garbage illegally dumped on them become cleaner, safer places to visit?
  - a. Clean up the area – with adult supervision and using gloves, pick up all the “illegally dumped” waste.
  - b. Separate waste into different piles of plastics, paper, metals, etc.
  - c. Can any of these items be reused? If so, how?
  - d. Can any of these items be recycled? If so, how and where?

# MISCELLANEOUS

- e. Is there fruit or vegetable wastes that could be composted?
  - f. Dispose of any remaining wastes properly.
7. Explain that this situation was “set up”, but there are many real illegal dump sites along our roadsides, in our parks, and near our rivers and streams.
8. Ask: What can be done to eliminate these real illegal dump sites?
- a. Organize cleanups like the America Recycles Day cleanup on or near November 15<sup>th</sup> every year or participate in Adopt a Highway programs countywide.
  - b. Make signs and posters to place in natural areas to discourage illegal dumping.
  - c. See if local government or sponsors can provide receptacles for trash and recyclables.
  - d. Write letters to local media providing education on proper disposal/recycling techniques.
  - e. Write letters to local officials asking for more enforcement action against illegal dumpers.
  - f. Help educate the people/citizens of your community about the dangers of improper waste disposal.

## Evaluation Questions:

1. What is illegal dumping?
2. How does illegal dumping spoil the natural beauty of New York, The Natural State?
3. How does illegal dumping affect tourism and property values in New York?
4. What is the proper way to dispose of wastes?
5. What can you do to help eliminate illegal dumping?

## Additional Reading:

### *“It Zwipler & The Greatest Cleanup Ever”*

by Were Ross and Wer Enko & Lisa Verenko, 1991  
Published by Scholastic, ISBN-0590-44840-4  
730 Broadway, NY, NY 10003

### *“Katherine & The Garbage Dump”*

by Martha Morris  
Published by Second Story Press,  
ISBN 0-929005-39-2  
760 Bathurst Street  
Toronto, Canada M5S 2R6

## SOURCE:

*Keep Arkansas Beautiful*. [http://www.keeparkansasbeautiful.com/events/lesson\\_plans.asp](http://www.keeparkansasbeautiful.com/events/lesson_plans.asp)

(Developed by Phyllis Bone, Environmental Coordinator for the City of Fort Smith, AR/Sebastian County Regional Solid Waste Management District)

# MISCELLANEOUS

## Household Toxic Chemicals

**SUGGESTED GRADE LEVEL:** 4-6

### **OBJECTIVE:**

To realize that chemicals and toxics are all around us and that we can make a choice whether or not to use them. In this activity, students survey themselves and their families to find out attitudes and beliefs people hold about toxics. Older students are also introduced to use the terms toxic, risk, and benefit (a risk is a possible danger; a benefit is an advantage).

### **BACKGROUND:**

A toxic is any substance that is capable of harming a person if ingested, inhaled, or absorbed through any body surface. Toxic substances vary widely in the types of harm they cause and the conditions under which they become harmful. The effects of the toxic substances vary widely, too. Acute reactions are sudden ones such as vomiting or dizziness. Chronic reactions occur over longer periods and include symptoms such as decline in mental alertness, change in behavior, cancer and mutations that can harm unborn children of exposed parents. Because toxics can cause both acute and chronic reactions, they are a broader category than poison, which produce acute reactions only. For this reason, the words toxic and poison are not interchangeable.

Nobody is “for” toxic chemicals in the sense of wanting to endanger ourselves and others, and yet many toxic substances seem to be a necessary part of our lives and have come to be considered essential in our homes, our workplaces, and our schools. This predicament of needing substances that sometimes produce undesirable effects forces people to make choices about what is acceptable

to them. Different people are willing to take different risks related to toxic chemicals and have varying concerns about the effects of toxins on themselves and the people around them. Some people know that many of the products they use are potentially toxic but consider the risk worthwhile. Others try to avoid toxics and thus forego the benefits of certain products.

Many people do not know that household chemicals can be toxic. Most of the dangerous substances in the home are found in cleaners, solvents, pesticides, and products used for automotive care.

### **NOTE:**

It is not always possible to avoid the use of toxic substances (i.e. – if you have termites, you can either move out or use a pesticide to remove them).

### **MATERIALS:**

- ❖ 4-5 cleaning products, solvents, pesticides, etc.
- ❖ tape
- ❖ paper, pencil or pen
- ❖ handouts: *Home Toxics Survey and Possible Substitutions for Household Toxics*

### **PROCEDURE:**

1. Collect four or five familiar cleaning products. Tape the lid on so that students cannot open the containers. Prepare a chart on butcher paper titled “Toxics Survey Results” that students can use to record the results of their surveys. The chart should list all of the survey questions and allow spaces for recording their responses.

# MISCELLANEOUS

2. Introduce the activity and the unit by displaying the household products you have gathered. Ask students, "What are these things? What are they used for? What do we know about them? Is there anything dangerous about using them? What don't we know about these things that might be important to know?" In order to find out more about what we as a class think about toxics, complete the *Home Toxics Survey*.
3. Hand out one *Home Toxic Survey* to each student and explain that the survey is not a test, students do not need to write their names on the survey; there are no right or wrong answers. Give the students a few minutes to complete the survey.
4. Divide students into groups of four. Have each group discuss the following questions using the survey:
  - ❖ What are toxics?
  - ❖ Where do we find toxics?
  - ❖ Who uses toxics? Why?
  - ❖ Are we always aware of the presence of toxics?
5. Have each group share their responses to the questions with the class. Accept all responses; do not provide answers at this point. This is a time for students to begin thinking about toxics and for you to assess their initial understanding and attitudes. Talk with students about the idea that nobody is "for" toxics but most people think these substances are a necessary part of their lives. Tell them some people know many of the products they use are toxic yet consider it beneficial to continue using them, while other people avoid toxics by using an alternative or doing without certain products altogether.
6. Introduce the words risk and benefit. Help students discuss the meaning of these words.
7. Tell students that knowledge of toxics differs between people, as do their opinions, and that over the next two days the students are going to learn more about toxics. They will interview their family to find out what they know and think about toxics.
8. Ask students to interview one of the adults in their home.
9. **Discussion questions:**
  - ❖ Are most people concerned or not concerned about toxics?
  - ❖ What does toxic mean?
  - ❖ What ideas did most people in the survey agree on?
  - ❖ What else have we learned?
  - ❖ Was there anything that surprised you?
  - ❖ What does opinion mean?
  - ❖ What is the difference between fact and opinion?
  - ❖ What would you like to learn about toxics?
  - ❖ What choices can we make that are more beneficial to the environment and therefore to all of us?

## SOURCE:

Cornell Waste Management Institute. 1991. *Trash Goes to School*. (<http://cwmi.css.cornell.edu/TrashGoesToSchool/TrashIntro.htm>).

# MISCELLANEOUS

## Home Toxics Survey

1. What is your age? \_\_\_\_\_ Are you male or female? \_\_\_\_\_
  2. What do you think of when you hear the word toxic?
- 

3. Which of the following do you or your family use? Which of the following do you or your family consider toxic? (Leave blank if you don't use these products.)

Item	Use	Consider Toxic
Laundry detergent used to wash clothes		
Cleanser used in your house to clean sinks & bathtubs		
Furniture polish used to clean & shine furniture		
Drain cleaner used in sink & bathtub drains		
Glass cleaner used to clean windows & mirrors		
Baking soda used in cooking		
Air freshener used to make the air smell fresh		
Ant spray used to kill ants in & around the house		
Hair spray some family members use to keep their hair in place		

4. When do you think it is okay to use something that is toxic?
- 

5. What room in your home do you think contains the most toxics?
-

# MISCELLANEOUS

6. Which statement best describes your home?
- There are no toxics in my home.
- There are some toxics in my home.
- I do not know if there are toxics in my home.
7. Would you want to be told if something you are about to buy might be toxic?
- Yes
- No
- Sometimes
8. Do you think that people who work where there are toxics should be told this when they are hired?
- Yes
- No
- Sometimes
9. Do you think individuals should decide whether to buy and use toxics, or do you think the government should make it illegal to sell toxics?
- Individual should decide.
- Government should make it illegal.
- I don't know.

# MISCELLANEOUS

## Possible Substitutions for Household Toxics

Instead of:	Try:
Air Freshener	Set vinegar out in an open dish.
Drain Cleaner	Pour boiling water down the drain, or use a plunger or a metal snake.
Furniture Polish	1 tsp. Lemon oil in 1 pint mineral oil, or rub crushed raw nuts on the wood for an oily polish.
Houseplant Insecticides	Wash leaves with soapy water, then rinse.
Mothballs	Put clothes in cedar chests, or place cedar chips around clothes.
Oven Cleaner	Salt, baking soda, water (and elbow grease!).
Roach Spray	Chopped bay leaves & cucumber skins, or boric acid (sold in powdered form), or 1 part borax & 1 part brown sugar set out in dishes (these are not as effective & the latter two may be hazardous to animals and children.
Silver Cleaner	Soak silver in 1 qt warm water containing 1 tsp. baking soda, 1 tsp salt & a piece of aluminum foil.
Toilet-Bowl Cleaner	½ cup bleach.
Window Cleaner	2 tbsp. vinegar in 1 qt water.

# MISCELLANEOUS

## Can You Answer These Questions?

### Are You A Hazardous Material Expert?

Circle the correct answer for each of the following questions.

- 1) A potentially hazardous material is:
  - A) A product that is labeled "hazardous"
  - B) A liquid that is harmful only to children
  - C) Any substance that is misused
  
- 2) Potentially hazardous materials include:
  - A) Used motor oil
  - B) Garden pesticides
  - C) Household cleaning products
  - D) All of the above
  
- 3) A cover for containers on household products and medications, which is designed for safety is:
  - A) A pop top
  - B) A child-resistant cap
  - C) Screw lid
  - D) Bottle cap
  
- 4) A Household Hazardous Waste Management Facility
  - A) Provides alternative disposal and recycling options for hazardous materials
  - B) Gives information about household hazardous materials
  - C) Sells a large variety of hazardous materials
  - D) Both A and B
  
- 5) If you are unsure about whether a material is hazardous or not you should:
  - A) Throw it out with your garbage
  - B) Place it in your recycling bin
  - C) Bury it in your backyard
  - D) Call a hazardous waste management facility like the DEPOT and ask

Key: 1-C; 2-D; 3-B; 4-D; 5-D



# MISCELLANEOUS

## Answers

Dilution

Turpentine

Chemistry

Oil-based Paint

Spray Paint

Corrosive

Flammable

Brake Fluid

Household Waste

Antifreeze

Rat Poison

Gasoline

Motor Oil

Rust Remover

Insecticides

Reactive

Asbestos

Photochemical

DON'T EMPTY POLLUTANTS IN OUR TRASH!

# MISCELLANEOUS

## Sludge

**SUGGESTED GRADE LEVEL:** 4-6

**OBJECTIVE:**

To become familiar with the idea that sludge is a waste product but can also be a resource, depending on its characteristics and how we manage it.

**MATERIALS:**

Handouts:

*Sludge: A Waste and A Resource*

*Questions About Sludge*

*Sludge: Mix and Match*

**PROCEDURE:**

Have students read the information on the following page, then answer the questions and fill out the mix and match vocabulary exercise.

Answers: 1-f, 2-c, 3-a, 4-d, 5-g, 6-h, 7-i, 8-b, 9-e

**SOURCE:**

Cornell Waste Management Institute. 1991. *Trash Goes to School*. (<http://cwmi.css.cornell.edu/TrashGoesToSchool/TrashIntro.htm>).

# MISCELLANEOUS

## Sludge: A Waste and A Resource

Have you ever stopped to think about what happens to the water after it goes down the drain in your sink, bathtub or toilet? This water is called **wastewater**. If you live in the country, your house probably has a **septic system**, which separates wastewater into solid and liquid portions. The liquid portion filters through the soil underground. The solid portion collects in an underground tank, and every few years a truck comes to pump out the solids and takes them to a building called a **sewage treatment plant** for disposal.

If your house does not have a septic system, your wastewater probably eventually ends up in a lake or stream, but first it is cleaned up so that it will not cause water pollution. Wastewater goes from your house through a series of pipes, to the sewage treatment plant. There, the wastewater is separated into two parts: 1) the liquid portion, which is cleaned and sent into a lake or stream, and 2) the solid portion, called **sludge**.

What happens to the sludge? Often it is sent to a **landfill**, where it is buried along with garbage and other types of wastes. In some communities it is burned in an **incinerator**, and in other areas it is spread on land or dumped in the ocean. Which of these do you think is the best thing to do with sludge?

The most common way of getting rid of sludge is to send it to a landfill. One problem with this method is that many landfills are filling up, and towns are having trouble finding places to put new ones. If sludge is sent to an incinerator, most of it is burned up, but there is a part that will not burn. This part, called **ash**, is usually taken to a landfill. Some of the chemicals in sludge go into the air when sludge is burned, and some people are worried that burning sludge will cause air pollution.

In areas where there is plenty of land, spreading sludge on fields can be a good idea. Sludge contains **nutrients**, chemicals that help plants to grow, so sludge can be used to replace other kinds of fertilizers. One problem with spreading sludge on land is that some sludges contain chemicals that are **toxic**. That means they can injure our health if they get into the food we eat or the water we drink. Scientists can do chemical tests to measure what toxic chemicals are in the sludge and then decide whether it's a good kind of sludge to use on land.

Some cities that are near a body of water send their sludge on a barge out into the ocean for dumping. This is now against the law because it causes water pollution in the ocean, and these cities will have to find new ways of getting rid of their sludge.

# MISCELLANEOUS

## Questions about Sludge

1. Sludge comes from:

- a) garbage
- b) the ocean
- c) cleaning wastewater
- d) air pollution

2. Four ways of getting rid of sludge are:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_

3. One possible problem with incineration of sludge is

\_\_\_\_\_

4. Spreading sludge on land is

- a) never a good idea
- b) sometimes a good idea, depending on what toxic chemicals are in the sludge

5. Sludge can help plants by providing

- a) ash
- b) nutrients
- c) garbage
- d) toxic chemicals

6. What do you think we should do with sludge?

\_\_\_\_\_  
\_\_\_\_\_

7. How can we make less sludge?

\_\_\_\_\_

# MISCELLANEOUS

## Sludge: Mix and Match

Match the vocabulary words in the left column with the correct definitions in the right column.

1. sludge	a) the solids that are left after sludge is burned at an incinerator
2. sewage treatment plant	b) chemicals that help plants to grow
3. ash	c) a place where wastewater is cleaned up
4. septic system	d) a way of treating wastewater in areas where there is no sewage treatment plant
5. incinerator	e) water that goes down the drain
6. toxic	f) the solid part that is left over when wastewater is treated at a sewage treatment plant
7. landfill	g) a place where sludge can be burned
8. nutrients	h) able to injure human health
9. wastewater	i) a place where garbage is buried in the ground