K - 3: Household Connections

Subjects
Science, Social Studies, Language Arts, Mathematics

Skills
Applying ideas to solve problems, communicating, graphing data, synthesizing

Materials
Newsprint for mural (“Routes to the Environment” Sheet from 4-6 Getting to the Route of the Problem), “Solution to Household Pollution Maze”, clean trash (e.g.: newspapers, soda cans, glass bottles, etc.), empty hazardous product containers sealed in clear plastic bags, clear 2 liter bottle that has the label peeled off and is cut in half, one coffee filter, two tablespoons of soil, red tempera paint in a container labeled household hazardous waste

Time
Two class periods

Vocabulary
Waste, household hazardous waste, environment, motor oil, groundwater, landfill, incinerator, mural

Related Teaching Toxics Activities
K - 3 Washing Water
4 - 6 Getting to the Route of the Problem
4 - 6 Wading Through Water Pollution

Concept
Hazardous substances in household products can enter the environment if they are improperly used or disposed.

Objective
Students will recognize how their homes are connected to the environment by tracing on a maze the way household hazardous waste enters the environment.

Background See Information Section, 121-124.
Generally, household hazardous waste can enter the environment in three ways:
(1) Thrown away with the trash, eventually entering landfills or incinerators
(2) Dumped directly on the ground
(3) Poured down the drain. All three ways release household hazardous waste into the environment, potentially contaminating water supplies.

Activities
Introduction to Household Hazardous Waste
- Ask the students leading questions: “What do you think happens to the chemicals in this cleaner bottle (show empty container or the one holding the red tempera paint) once this is thrown in the trash? How about if we poured them on the ground or down the sink?” Listen to a few responses and say, “Let’s see for ourselves.”
- Take the bottom half of a clear two liter bottle and set it onto the table. Flip over the top half of the two liter bottle and insert it into the bottom half. Place one coffee filter into the inverted top half. Scoop two tablespoons of soil into the filter. Squirt red tempera paint on top of the soil. Tell the children that the red paint represents the chemicals that leak out of household hazardous waste containers. Now pour water, acting as the water in the sink or rain, onto the paint and instruct the children to observe the water as it goes through the filter and comes out reddish in color. This experiment represents the chemicals contaminating the groundwater. This could be done as a demonstration for younger children or in small groups with older children.
- Have students draw pictures showing where something goes when it is thrown into a trash can, poured down the drain and dumped on the ground.
Making Murals

- Using the Routes to The Environment sheet from the 4 - 6 Getting to the Route of the Problem, draw a big mural.
- Read or have students read the scenario. Have students trace, on the mural, where the hazardous product travelled.

Mural Scenarios

- David was cleaning out his garage. There was a lot of old paint that he was never going to use again. He threw the paint in the trash can. Find the trash can and trace where the old paint went.
- Alice changed the motor oil in her car. She poured the old oil on her wood pile to help it catch fire faster. Find the fire and trace where the motor oil went.
- Jackson decided that there were too many weeds on his lawn. He sprayed a weed killer on the lawn to get rid of the weeds. When Jackson finished the job, he had some left over, so he dumped it on the ground. Find the lawn and trace where the weed killer went.
- Shira finished painting. After cleaning her paint brushes with cleaner, she poured the paint brush cleaner down the drain. Find the upstairs sink and trace where the paint brush cleaner went.

Solutions to Household Pollution

- Pass out the Solutions to Household Pollution Maze. Read the Maze Scenarios and have students trace how household pollution can be prevented.
- After completing the maze, have students draw pictures and/or write a list and/or a narrative about ways to keep household hazardous waste from entering the environment. (e.g.: don’t use something that might become a household hazardous waste, recycle if possible, save for a household hazardous waste collection day.)

Maze Scenarios

- Alice changed the motor oil in her car. She took it to the recycling center where it could then be taken to a factory to be cleaned. People can use the cleaned oil again in their cars or to heat buildings. Find the oil container and trace where it went.
- David was cleaning out his garage. There were many cans of old paint that he decided he wasn’t going to use again. He took the paint to an event called a
Paint Drop and Swap. People bring their unwanted paint to this event so that other people who need paint can take the paint home with them. Find the paint can and see where David took the paint.

- There were lots of weeds on Jackson’s lawn. At first he did not like them. Then one morning he noticed the weeds had beautiful flowers. He decided to let the weeds grow, so he did not have to use weed killer. Now the bees can stay because there are plenty of flowers. Find the bee in the lawn and trace his journey from flower to flower.

- (Note: No maze work for this story.) Shira finished painting. She cleaned her brushes in paint cleaner. Shira saved the paint cleaner to use the next time she needed to clean her brushes. Shira put the paint cleaner in a labeled container and placed it in a locked cabinet.

**Extensions**

### Solution To Household Pollution Maze

- Go onto your town’s webpage to research how, when and where hazardous household waste is collected. Does your town have a paint swap or a used motor oil collection area?

**Trash Sort**

- Collect clean trash (empty packages) or pictures of hazardous household products. Include materials that can be locally recycled (e.g.: glass, tin, newspaper); items that are sent to the landfill/incinerator; and household hazardous waste.

- Have students sort, count and/or graph into three piles: Things We Can Recycle; Things That Are Thrown Away; and Things That Are Household Hazardous Waste and need to be treated differently.