Lesson Plan: Toxic Chemicals in the Home

Adapted from Trash Goes To School, Toxic Lesson Plan, Cornell Waste Management Institute – www.cwmi.css.cornell.edu

Goal: To teach students that chemicals and toxins are all around us and we can make a choice whether or not to use them, and to teach students about safer alternatives.

Assessment: Students will take a Household Hazardous Waste survey to learn about different types of products that contain toxic chemicals. They will then interview different family members to see which ones exist in the home.

Age Group: Grades 6-8

Time: 45-60 minutes

Materials:
- Household toxics such as cleaners, solvents, pesticides, engine care products
- Household Hazardous Product Survey
- One copy of the MPCA Non-Toxic Cleaning Recipes card per student. This can be found at the link below: http://www.pca.state.mn.us/index.php/view-document.html?gid=11368

Background Information for Teachers
A toxic material is any substance that is capable of harming a person if ingested, inhaled, or absorbed through anybody surface. Toxic substances vary widely in the types of harm they cause, the conditions under which they become harmful, and the amount it takes to cause harm. The effects of the toxic substances vary widely, too. Acute reactions include vomiting and dizziness. Chronic reactions include decline in mental alertness, change in behavior, cancer and mutation that can harm unborn children of exposed parents. Because toxics can cause both acute and chronic reactions, they are a broader category than poisons, which produce acute reaction only. For this reason, the words "toxic" and "poisonous" 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 toxics and have varying concerns about the effects of toxics on themselves and 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 sacrifice the benefits of certain products.

We do not know exactly how many households in our society use commercial cleaning products, but the number is quite high. In a survey conducted in the Seattle area, 97.5% of the respondents said they had household cleaners in their home. In a 1979 consumer survey of the most-used item sold in the supermarkets, soaps and detergents topped the list, and other cleaning products such as scouring powders and air fresheners were bought by more people than staples such as milk and butter.

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

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 the terms toxic, risk, and benefit (a risk is a possible danger; a benefit is an advantage).

NOTE: handling toxic products can be dangerous to health.

Activity

- During the activity each student will answer the survey questions. Later, for a home learning activity, students will interview family members. Make enough copies of the Household Hazardous Waste Survey so that each student can conduct the home survey.
- Introduce the students to the survey by posing the questions to the class and discussing their responses. Explain that a survey is a set of questions with no right or wrong answers; surveys allow us to find out what different people think about the same questions.
- Tell the class that they will be taking home the same set of questions that they have just answered in class. Tell them that they should ask each member of their family to record their individual responses on a separate sheet and share their responses verbally with the student. Ask the students to bring the survey back to school the following day.
- Have a class discussion using the following questions:
  1. What does “toxic” seem to mean to the people we surveyed?
  2. Do most people seem to agree on the question of when it is okay to use toxics? If not, why do you think people have different ideas about this?
  3. Did members of your family answer the questions the same way as you and as each other?
  4. What else did you find out?
  5. Was there anything that surprised you?
- Give each student a copy of the MPCA Non-Toxic Cleaning Recipe card for them to take home.

Extensions

Have students draw floor plans for their homes, indicating where and what types of hazardous products may be found there. Discuss safe storage of hazardous products to prevent injury by children and pets. Extend this to a discussion of safe disposal of hazardous wastes (Unwanted portions should be given away or taken to a hazardous waste collection site. Pouring substances such as paint thinner or used motor oil down the drain causes water pollution, and throwing hazardous wastes away may cause pollution of the water draining from the landfill.)
Minnesota Teaching Standards
6th Grade
Language Arts: 6.13.3.3, 6.13.4.4, 6.13.7.7

7th Grade
Language Arts: 6.13.3.3, 6.13.4.4, 6.13.7.7

8th Grade
Language Arts: 6.13.3.3, 6.13.4.4, 6.13.7.7