What’s Going On?
Household Hazardous Waste and Poison Safety
Lesson Plan
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Using the book
What’s Going On in There? By Geoffrey Grahn

Grade Level: 2nd – 5th
Time: 55 minutes
Subject area: reading, health, and science

Teaching Objectives:
1. Students will know many consumer products are hazardous substances.
2. Students will know the characteristics of hazardous materials.
3. Students will know exposure pathways.
4. Students will understand the importance of proper use, storage, and disposal of household hazardous products.

Materials:
• What’s Going On in There? By Geoffrey Grahn
• Flannel board (½ colored red for hazard, ½ colored green for safe)
• Assorted “look alike” products: orange juice/Shout, floor cleaner/power drink, apple juice/wood floor cleaner etc. (place paper over back label so students don’t get clues about what the product is).
• Assorted pictures of household products i.e. dish detergent, laundry soap, furniture polish, paint, varnish, stripper, batteries (Pictures may be laminated and with a piece of hook Velcro on the back)
• Assorted pictures of food products (May include pictures of outdoor plants and in editable berries)
• Picture of exposure pathways (attached)
• Picture of hazardous characteristic signs (attached)
• Iowa Statewide Poison Control Center poster and phone stickers
(To order free materials call the Iowa Statewide Poison Contact the educator at 712-279-3717 or go to: www.iowapoison.org)

Vocabulary:
Hazardous (something that is harmful or can injure; a source of danger)
Hazardous waste (any waste product that poses a risk to human health or the environment)
Poison (a substance that can cause injury, sickness or death when eaten, inhaled or absorbed)
Toxic (poisonous or hazardous to one’s health)
Reactive (substances causing a chemical response when combined e.g. baking soda and vinegar)
Corrosive (to be worn away by chemical action, burn)
Explosive (substance that can explode or blow up)
Dermal absorption (to be taken into the body through the skin)
Ingestion (take into body through the mouth, eat)
Inhalation (breath into lungs)

Background: The average home contains seven pounds of hazardous material that has not been used in over a year. There is no risk if there is no exposure. Proper removal of hazardous material from a home is the best way to reduce the risk of accidental poisoning, injury, or fire. Many local solid waste/landfill agencies provide, by appointment, household hazardous waste disposal options at no charge to residents. In Iowa, to find contact information for your local solid waste/landfill agency go to: http://www.iowadnr.com/waste/sw/files/planareadesc.pdf
Or for Regional Collection Centers for Household hazardous waste: http://www.iowadnr.com/waste/hhm/
Students are aware that some products are hazardous-insecticide, rat bait, or bleach. Students may not be aware that other products such as dishwasher detergent, furniture polish and mouthwash are hazardous if not used properly. Proper storage, use, and disposal for hazardous materials used regularly is important. Reading the label gives the user important information about the product. Harm may occur when products are not used according to directions. Instructing a user to “have proper ventilation” poses concern of inhalation of toxic fumes. When instructed to wear gloves, the product may
cause burning (corrosive) or be absorbed into the body. For more information on product labeling go to: http://www.epa.gov/pesticides/label/. When possible, choose a less toxic product to do the job. Always store product in the original container, and buy only the amount needed for the job. Accidental poisonings or incidents often occur when products are in use so adult supervision is necessary. Children are more prone to accidental poisoning around mealtimes- when adults are preoccupied fixing the meal and kids are hungry. Over fifty percent of calls to the hotline involve children under the age of six. The majority are boys up to age thirteen and girls over thirteen. Cosmetics/personal care products, cleaning substances and analgesics are the top three substances in childhood poisoning.

Procedure:
1. **Read What’s Going on in There?** By Geoffrey Grahn: The theme of the book is “…but things are not as they appear.” (You may need to direct student’s attention to the pictures as a clue to the book’s theme)
2. **Discuss characteristics of hazardous materials and exposure pathways:** Common household products may be hazardous; just because products are used widely and often does not make them safe. Being aware of “what’s going on” because “things are not as they appear” is the first step toward household safety. A product is hazardous if it exhibits one or more of the following characteristics:
   - **Characteristics of hazardous products:**
     1. Toxic/Poison-mouse bait, insect spry, anti-freeze
     2. Reactive-bleach and ammonia
     3. Explosive/Flammable-gasoline, lamp oil, paint stripper
     4. Corrosive-drain cleaner, etching compounds
   - **Exposure pathways:**
     1. Inhalation
     2. Ingestion
     3. Dermal absorption

Students generally understand the concept of poisoning by ingestion, but do not clearly understand the risk of inhalation and dermal absorption with common products. Give examples.

3. **Look Alike Samples:** Hold up a set of your sample materials with the back of the containers toward the group. Ask a student to point to the product they’d like to eat/drink. Turn the containers around and show student what they choose. Ask these questions for each product:
   - **What is this?**
   - **Do these bottles look similar? Are the caps the same color? Are the contents a similar color?**
   - **What do you see on the front label? (Many cleaning product have pictures of fruit on the label)**
   - **Accidents happen to everyone… all the time. Have students share stories of household accidents of which they are aware-not limited to ingestion. (“My grandma used hair cream for tooth paste”, “My dad got sick after spraying the garden”) Sharing engages the student and reinforces that accidents happen to everyone…all the time, that is why we need to use caution when using some household products.**

4. **Read the Label:** The federal government requires all hazardous substances to be labeled. Labels give the user information about the product: How to use it safely and effectively, when to use it, proper storage, proper disposal, recycling information, what to do in case of accidental poisoning, and more. Have students remove the paper label off look-alike products. Can they find any of this information on these labels?

5. **Sorting Activity:** Mix pictures of household products and foods in a bag or container. Tell students that red means—HAZARD/CAUTION! and green means—SAFE/OK! Instruct students to take a picture out of the container and look at it. Have student describe the product they have picked, how it is used, and if it is hazardous or not. If they don’t recognize the product have the class discuss what it is and how it is used. Have student place the picture on the red or green side of the board and explain why.

6. **Iowa Statewide Poison Control Center:** Show poison control poster and phone stickers. Explain, in case of accidental poisoning call the Iowa Statewide Poison Control Center instead of 911.

**Assessment:** Discussion throughout the sorting activity should assist with gauging students understanding of lesson concepts

Adapted from the East Central Iowa Council of Government’s 2006 Summer Reading Program
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Exposure Pathways

Eat

Skin

Breath
FLAMMABLE

REACTIVE

CORROSIVE

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TOXIC