



Lesson: Safe Subs

Grade: 4-5

Subject: Art, Health, Science (extension)

Objectives:

Students will:

- identify safe substitutes for various hazardous household products
- create a recipe book of safe substitutes for home use

Teaching Time: 50-60 minutes

Materials: handout, Safe Substitutes Recipes and Tips for a Safer Home; paper and markers or colored pencils or crayons to make recipe books of safe substitutes; use magazine cutouts to decorate books with nature images, if desired.

(Optional:) store bought examples of the cleaners listed on the safe substitutes handout; one or more pre-made glass cleaner from vinegar and water and towels or coffee filters for students to practice using a non-toxic cleaner--or have students make the recipe, if desired.

Background:

(Prerequisite: Hazardous Routes). According to national estimates, each home contains from three to eight gallons of hazardous materials in kitchens, bathrooms, garages, and basements. Throwing these items in the garbage can threaten the safety of people, animals, and the environment. The most effective way to reduce the quantity of hazardous waste pollution is to reduce the quantity of household hazardous wastes we produce. Oregon pioneers used vinegar and newspaper to clean windows and baking soda to clean their silver among other things. The way to get clothes white and ovens clean was to use “elbow grease.” This lesson informs students of the common nonhazardous substitutes available to use in place of more expensive and environmentally hazardous chemicals.

Procedures:

- Review with students the meaning of the term “household hazardous waste” (see Lesson: Hazardous Routes) and have them give examples, such as pesticides, motor oil, household cleansers, and paint, etc. Hazardous wastes can be either solid, liquid, or gas, and improperly disposing of them can harm the air, water, or soil.
- Pass out the handout, “Safe Substitutes Recipes” to each student. Many hazardous products we purchase in stores are not always necessary to get the job done and may even harm us or the environment.
- (Optional) Compare these recipes to store bought examples of these products and have students read the label and discuss how the store bought version may contain chemicals that are more toxic and must be used as directed by the label. Note that these product labels may contain the label warning words: Caution, Warning, or Danger.

Reflection/Response:

- Have students write and decorate a “recipe book” for the safe substitutes to household hazardous products and share with their families and friends.
- (Optional) Let students take turns cleaning with a non-toxic glass cleaner that you have made as a class or for the class.
- Give each student the handout “Tips for a Safer Home”.

Extensions:

- Conduct a test of certain cleaning products to their suggested “safe substitute” alternative to compare their effectiveness. Have students record and evaluate their results.
- Find out where/when household hazardous wastes can be disposed in your area. Call the Household Hazardous Waste Hotline at: 1-800-732-9253.

REDUCE
REUSE
RECYCLE

Oregon Common Curriculum Goal:

Science: Scientific Inquiry

- Conduct a simple investigation and hypothesize the outcome.

Arts: Create, Present, and Perform

- Apply artistic elements and technical skills to create, present and/or perform works of art for a variety of audiences and purposes

Health Education: Safe and Healthy Environment and Controllable Health Risks and Informed Consumer

- Understand the potential influences of environmental factors on personal and public health.
- Understand and apply prevention and risk reduction strategies for health-related interventions.
- Understand and apply strategies to improve and maintain individual, family, school and community health.
- Evaluate the validity and reliability of health-related information, products and services as a consumer or potential consumer.

Grade 5 Benchmark:

Students will:

- Record, evaluate, analyze and draw conclusions from a simple investigation.
- Determine information from the data which could be used to conduct a further investigation.
- Create, present and/or perform a work of art, using experiences, imagination, observations, artistic elements and technical skills to achieve desired effect.



Handout: Tips for a Safer Home

Dear Parent:

Your child has recently been learning about products in the home that are potentially dangerous to people, wildlife and the environment if used or disposed of improperly. The following worksheet has some tips for dealing with chemicals in your home and will help you and your child identify products that should be used and disposed with care.

Safe Use and Disposal Tips

- Always buy the least toxic product necessary to do the job. Avoid products with the words CAUTION, WARNING, DANGER, or FLAMMABLE on the label.
- Buy the smallest container necessary to accomplish your task to avoid having left overs.
- Follow the instructions carefully and try to use up the product as intended or give left overs to someone else who can use it.
- Never pour hazardous products into storm drains or onto the ground.
- Don't mix hazardous chemicals or store them in unlabeled containers.
- Do take hazardous chemicals and cleaners to a household hazardous waste collection center or special collection event.
- Do take used motor oil to a service station or authorized dealers for recycling.
- Contact your local solid waste official to find out how to properly dispose of any questionable materials, if you are not aware of any special collection events or facilities in your area or call the HHW hotline for more information 1-800-732-9253 or 503-229-5913 in the Portland area.





Handout: Safe Substitutes Recipes

Air Freshener

A few cotton balls

Place a few drops of vanilla extract onto the cotton balls and set inside a cup or bowl

Good for the home, car, or refrigerator.



For unpleasant odors:

Boil 1 TBL of white vinegar in 1 cup of water.

Drain Maintenance

1/2 cup of baking soda in the drain

Follow with 1/2 cup of vinegar

Cover and allow to sit for 15 minutes.

Rinse with 2 quarts of boiling water.

Do this regularly to keep drains fresh and to help prevent clogs.



Glass Cleaner

1 quart of warm water

1/4 cup of white vinegar or 2 TBL of lemon juice

Mix and store in a spray bottle. Coffee filters make good glass cleaning rags and can be composted!



Vinyl Floor Cleaner

1 gallon of warm water

1/2 cup of white vinegar or 1/4 cup of borax

Mix in a bucket and mop as you normally would.

Moth Balls

Store wools in sealed plastic bags or airtight containers.

Place garments in the freezer for several days to kill moths or larvae.

Vacuum rugs, carpet and upholstered furniture regularly.

Fertilizer

Amend your soil with a 2/3 soil to 1/3 compost ratio. This will add nutrients, help the soil retain water and keep plants hardy without the use of chemical fertilizers.

Slug Removal

Create slug traps with plastic food tubs. Cut several 1-inch square openings around the tub about 2-3 inches from the bottom. Place tub into the ground so that the openings are just above ground level.

Fill tub with 1/2 inch of beer or yeast mixture and cover with lid. Empty every couple of days.

Yeast mixture: 2 TBL flour, 1/2 tsp of baker's yeast, 1 tsp of sugar in 2 cups of warm water.

