

School Recycling Club SHIP

(Supporting Home Instruction Program)



Lesson Plan 7

- Grade Level: K-3
- Lesson: II—The Routes of Household Hazardous Waste -
Household Connections
- Source: *Teaching Toxics*
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- Activity/Craft: Water Inside Us (https://www.groundwater.org/kids/getinvolved/girlscouts/leader_resources/water_inside_us_video.html)
- Video Link: What is Groundwater? (https://www.youtube.com/watch?v=oNWAerr_xEE)
- Game Link: Thirstin's Water Cycle Adventure (https://www3.epa.gov/safewater/kids/pdfs/graphic_grades_k-3_watercycle.pdf)



Lesson Matrix Grades K-3

Teaching Toxics

Lesson	Concept	Objective	Common Core Alignments	Skills
K-3 Home Tour	Products containing hazardous substances are commonly used in homes.	<ul style="list-style-type: none"> Identify types of hazardous products Identify place where hazardous products are found in the home 	Kindergarten CC.RI.K.4 CC.W.K.2 CC.K.G.1 Grade 2 CC.RI.2.4 CC.SL.2.3 CC.2.MD.10	<ul style="list-style-type: none"> Analyzing Applying mathematics concepts Collaborating Investigating
		Grade 1 CC.RI.1.6 CC.SL.1.1c CC.1.MD.4 Grade 3 CC.RI.3.7 CC.SL.3.4 CC.3.MD.3		
K-3 Warning Words	Signal words and /or symbols identify products which contain hazardous substances.	<ul style="list-style-type: none"> Recognize the signal words ("caution," "warning," "danger,") and visual symbols that indicate the presence of hazardous substances in consumer products 	Kindergarten CC.RI.K.9 CC.W.K.2 CC.K.MD.2 Grade 2 CC.RI.2.4 CC.SL.2.2 CC.2.MD.10	<ul style="list-style-type: none"> Applying mathematics concepts Communicating Evaluating Graphing data
		Grade 1 CC.RI.1.6 CC.SL.1.1c CC.1.MD.1 Grade 3 CC.RI.3.1 CC.RI.3.4 CC.SL.3.3 CC.3.MD.3		
K-3 Washing Water	Household wastewater is treated by biological or chemical means so that it can be used again.	<ul style="list-style-type: none"> Trace the path of water to find out what happens after something is poured down the drain 	Kindergarten CC.RI.K.1 CC.SL.K.2 CC.W.K.3 Grade 2 CC.RI.2.2 CC.SL.2.2 CC.W.2.2	<ul style="list-style-type: none"> Collaborating Gathering information Questioning
		Grade 1 CC.RI.1.2 CC.SL.1.2 CC.W.1.8 Grade 3 CC.RI.3.1 CC.RI.3.3 CC.SL.3.2 CC.W.3.4		

Lesson	Concept	Objective	Common Core Alignments	Skills
K-3 Household Connections	Hazardous substances in household products can enter the environment if they are improperly used or disposed.	<ul style="list-style-type: none"> Recognize how homes are connected to the environment Trace the ways household hazardous waste enter environment 	Kindergarten CC.RI.K.3 CC.W.K.8 CC.K.CC.6 Grade 2 CC.RI.2.7 CC.SL.2.3 CC.2.MD.10 Grade 3 CC.RI.3.7 CC.SL.3.1c CC.3.MD.3	<ul style="list-style-type: none"> Applying ideas to solve problems Communicating Graphing data Synthesizing
		<ul style="list-style-type: none"> Identify the ways in which substances enter the body Develop awareness of the ways in which substances enter the body 	Kindergarten CC.L.K.6 CC.RI.K.4 CC.SL.K.1 Grade 1 CC.RI.1.7 CC.SL.1.2 CC.SL.1.5 Grade 3 CC.RI.3.7 CC.SL.3.3 CC.W.3.8	<ul style="list-style-type: none"> Defining problems Evaluating Researching
K-3 Prevention is the Best Medicine	Substances from the external environment enter the body through ingestion, inhalation, and absorption.	<ul style="list-style-type: none"> Introduce the concept of toxicity reduction by using non-toxic cleaners in the classroom 	Kindergarten CC.L.K.5.c CC.RI.K.10 CC.SL.K.4 Grade 2 CC.RI.2.3 CC.SL.2.2 CC.2.NBT.3	<ul style="list-style-type: none"> Collaborating Designing Investigating Using mathematics
		<ul style="list-style-type: none"> Using non-toxic cleaning products is one way to reduce consumption of hazardous products. 	Grade 1 CC.RI.1.1 CC.SL.1.2 CC.1.NBT.3 Grade 3 CC.RI.3.1 CC.W.3.4 CC.3.NF.1	<ul style="list-style-type: none"> Collaborating Designing Investigating Using mathematics

Lesson Matrix Grade K-3

Teaching Toxics

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.

Common Core Alignments

KINDERGARTEN

CC.RI.K.3

Reading Informational Text:
Key Ideas & Details

CC.W.K.8

Writing:
Research to Build & Present
Knowledge

CC.K.CC.6

Mathematics:
Counting & Cardinality

GRADE 1

CC.RI.1.3

Reading Informational Text:
Key Ideas & Details

CC.SL.1.2

Speaking & Listening:
Comprehension & Collaboration

CC.1.MD.4

Mathematics:
Measurement & Data

GRADE 2

CC.RI.2.7

Reading Informational Text:
Integration of Knowledge & Ideas

CC.SL.2.3

Speaking & Listening:
Comprehension & Collaboration

CC.2.MD.10

Mathematics:
Measurement & Data

GRADE 3

CC.RI.3.7

Reading Informational Text:
Integration of Knowledge & Ideas

CC.SL.3.1c

Speaking & Listening:
Comprehension & Collaboration

CC.3.MD.3

Mathematics:
Measurement & Data

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 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

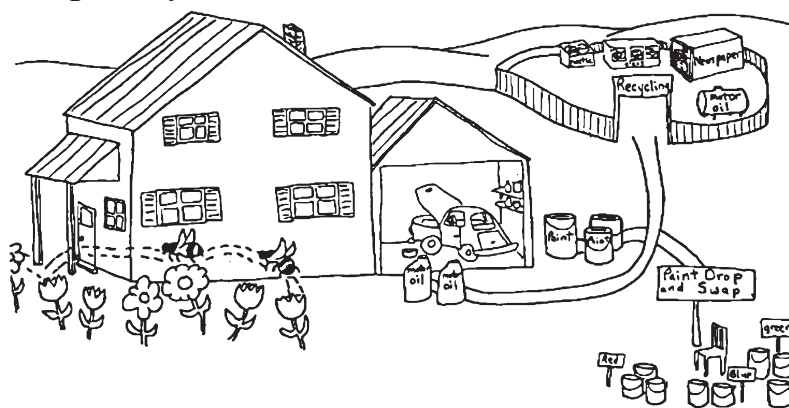
- Alice changed the motor oil in her car. She took it to the recycling center where it could then be taken to a factory to be cleaned. People can use the cleaned oil again in their cars or to heat buildings. Find the oil container and trace where it went.
- David was cleaning out his garage. There were 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.