

Lesson 25

Potential Polluters

What can cause pollution?
What is the impact of pollution in a watershed?
What are ways to prevent or reduce pollution?

GOAL To understand that pollution adversely impacts the watershed

OBJECTIVES Students will:

- ✓ analyze information to identify a potential polluter
- ✓ understand that contaminants in surface water can potentially contaminate ground water

MATERIALS facts and culprit sheets, pencils, paper

CORE CURRICULUM CONTENT STANDARDS

- Language Arts 2(4)
- Science 3(4,5),7(8), 8(2),14(1,2)
- Social Studies 6(5), 9(1),10(5,7,8)

VOCABULARY pollution

PROCEDURES

1. Present facts to students about non-point source pollution before starting this activity. Explain to students that surface water that flows in rivers, lakes, and streams is easy to see, but groundwater fills up spaces between rocks and soil underground. Pollutants can seep down through the soil into the ground water and potentially contaminate it. Pollutants that are easily identified are called point source pollution; when the exact source can not be identified, it is called non-point source pollution. Non-point source pollution includes run-off from the streets that carry material from lawns, air pollution and streets.
2. Present a pollution problem to the students. Distribute information about five potential polluters and the facts to help them solve the problem. The facts and people/company descriptions are listed separately at end of lesson.
3. Break up students into groups. Have students work together to come up with solutions and reasons why.
4. Have students answer the following questions:
 - a. Who are potential polluters?
 - b. How are they polluting?
 - c. How can they reduce the amount of pollutants?
 - d. Is there anyone that can help?

EXTENSIONS

1. Monitor a stream or river area to identify potential contaminants.

RESOURCES

Braus, Judy, Nature Scope Pollution: Problems & Solutions, 1990, National Wildlife Federation, Washington, DC 20036 - 2266

GLOSSARY

pollution - the state of being contaminated with harmful substances

Facts about Pollution - yes or no?

1. Gasoline storage tanks may develop leaks after 20 years.
2. Crops grown with pesticides often look “too good to be true”.
3. When substances percolate through the soil, they can contaminate groundwater.
4. Many powdered laundry detergents contain phosphates.
5. Pesticides that are used on crops to kill insects can wash into waterways and poison fish and other animals.
6. Thick, green lawns often look that way because they are treated with chemicals.
7. Rain and snowmelt that wash off the land may flow directly into streams, lakes, rivers, etc. Or they may flow into storm drains that empty into waterways.
8. Gas stations store gasoline in underground tanks.
9. To repair or replace a leaking tank, someone must dig up the tank.
10. Sewage treatment plants treat wastewater to remove many of the pollutants in it, such as disease-causing organisms and food waste. Then, the treated water is dumped into rivers and other waterways.
11. Most sewage treatment plants can't remove all of the phosphates in the wastewater.
12. Fertilizers, road salt, animal waste, car fluids, and other materials that wash into waterways can poison aquatic plants and animals, decrease the amount of oxygen in water, or create other problems.
13. Phosphates and other chemicals can cause problems for aquatic life. Phosphates act like fertilizer and cause algae to grow at a tremendous rate. Algal “blooms” deplete the water of oxygen used by aquatic organisms.

Farmington River Watershed Education Curriculum: Middle School
Who's Pollution Is It?

The town water inspector discovered pollutants in the nearby waterway. Using the facts, determine who the culprit could be. Since it is non-point source pollution, it could be more than one person/company.

Lou's Lawn Care

Lou prides himself on how he cares for his client's lawns. He uses the best chemicals and trains his employees to use extra care when they fertilize the lawns. He started his company from scratch and works long, hard hours. The grass at his main client's place, the golf course at the Country Club, is known for being lush green and thick.

Frank's Farm

Frank's farm is a great place to bring kids. They can ride on the hay wagon and choose from a variety of beautiful vegetables. During the fall, people choose perfect pumpkins from the patch to display at their homes. The kids also get a chance to see the cows and other animals down by the stream.

Tonya Teenager

Tonya was very excited about getting her license and buying a new car. She had worked hard at babysitting and doing other jobs to save enough money. She even took a class on how to change the oil and antifreeze. She was well on her way to being a responsible driver, taking care that the car is well-maintained. After she finishes changing the oil, she dumps it down the storm drain.

Gladys Gas Station

Gladys' Gas Station has been around for 25 years. It has been in her family and she has recently taken it over after her father's retirement. Gladys was thinking about expanding the store where she sells sodas, snacks and candy. Drivers from all over stop here because it is halfway between two urban areas.

Rhoda Recycler

Rhoda has been a long time advocate of environmental issues. She participated and organized clean-ups long before others had done it. She educates others about the benefits of recycling at community workshops and plants organic vegetables at her house, taking care to use the compost as fertilizer. Rhoda heard rumors that pollutants were found in the nearby stream and wants to help.