



POINT TO A PROBLEM: POINT TO A SOLUTION

TIME: At least one session

OBJECTIVE: To understand the sources of water pollution. To understand how forests are a part of the solution to water pollution.

MATERIALS: Handout (page 3)

BACKGROUND:

Water pollution originates in many ways and can be designated as point source or nonpoint source. Point source pollution comes from a specific place such as a drain or pipe; nonpoint source pollution results from conditions such as runoff of soil from construction or from fertilizer or pesticide runoff.

Industrial waste water that is flushed into a stream or lake is an example of point source pollution that could raise the temperature of water. This temperature pollution disrupts the ecosystem and the breeding conditions necessary for aquatic life.

The nonpoint source water pollution resulting from fertilizer or herbicide/pesticide runoff also disrupts the aquatic ecosystem. Excessive nutrients (fertilizer) washed into water can cause an explosion in algae growth. This abundance of algae blooms (grows) and then dies. The decaying dead algae consumes the available oxygen in the water suffocating other marine life. Herbicide and pesticide runoff create a condition of “clear water” or water free of vegetative life. This disruption of the aquatic ecosystem leaves fish life without a food source.

BEFORE THE ACTIVITY:

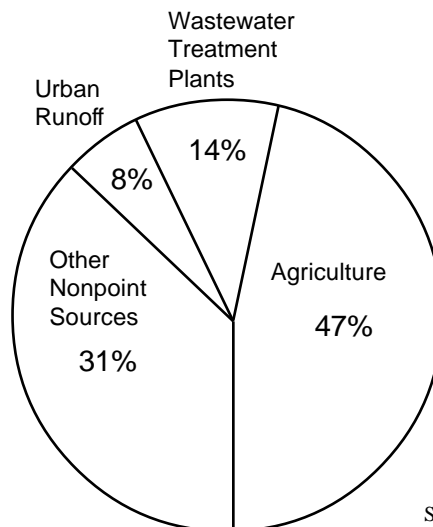
Have resource information available for students.

If the class will take a “Spot” walk,

Pollutants

- Sediment
- Oil and Grease
- Organic Matter
- Plant Nutrients
 - Nitrogen
 - Phosphorus
- Pesticides
- Bacteria
 - Fecal coliform
 - Fecal streptococci
- Alkali-earth Metals
 - Boron, Zinc, Cadium
- Copper, Mercury, Chromium, Lead
- Other Metals
 - Iron, Aluminum, Manganese

Pollution Sources



Source: Land Use and Water Quality NCCES, 1992. T. J. Hoban and M. G. Cook and F. J. Humenik.

BRANCHING OUT The NC Forest Stewardship Activity Guide

obtain the necessary permission and prepare maps of the area for walkers.

LEAD-IN:

Water pollution occurs when too much of something is produced and the ecosystem is thrown out of balance. What do you think are some of the causes of water pollution?

Scientists classify water pollution as being point source or nonpoint source. What do you believe these terms mean?

We can get a better idea of the meaning of these terms if we list different kinds of water pollution and try to decide if the pollution is from one target source or from a general vicinity.

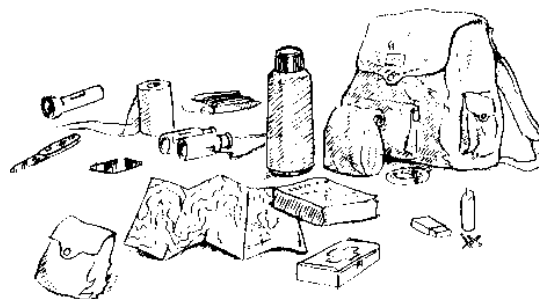
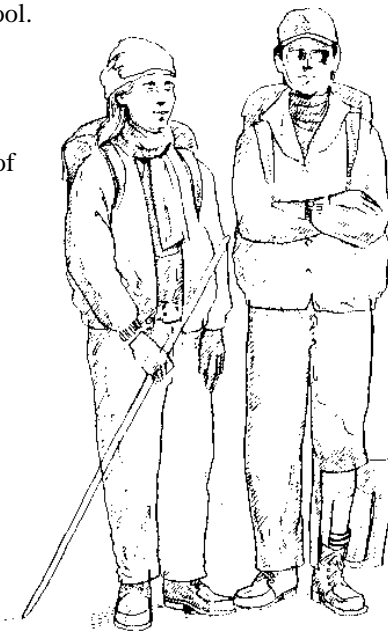
ACTIVITY:

1. Refer to students' list of water pollutants and possible source of pollution.
2. Pass out handout (page 3).
3. Have students reevaluate their list of pollution sources.
4. Ask students to consider where pollution could come from in their homes.
5. Consider where pollution might come from in town.
6. If possible, take a "Spot" walk to look for point source or nonpoint source pollution. Be certain to instruct walkers to wear appropriate shoes and clothing and to practice safety. Also remember to "take nothing but pictures and leave nothing but footprints."—or— Take a "Spot" walk in or around the home or school.
7. Ask walkers to identify natural elements such as good root systems or swiftly running creeks that might help reduce water pollution.
8. After the walk, ask for suggestions to limit some of the pollution found.



BRANCHING OUT:

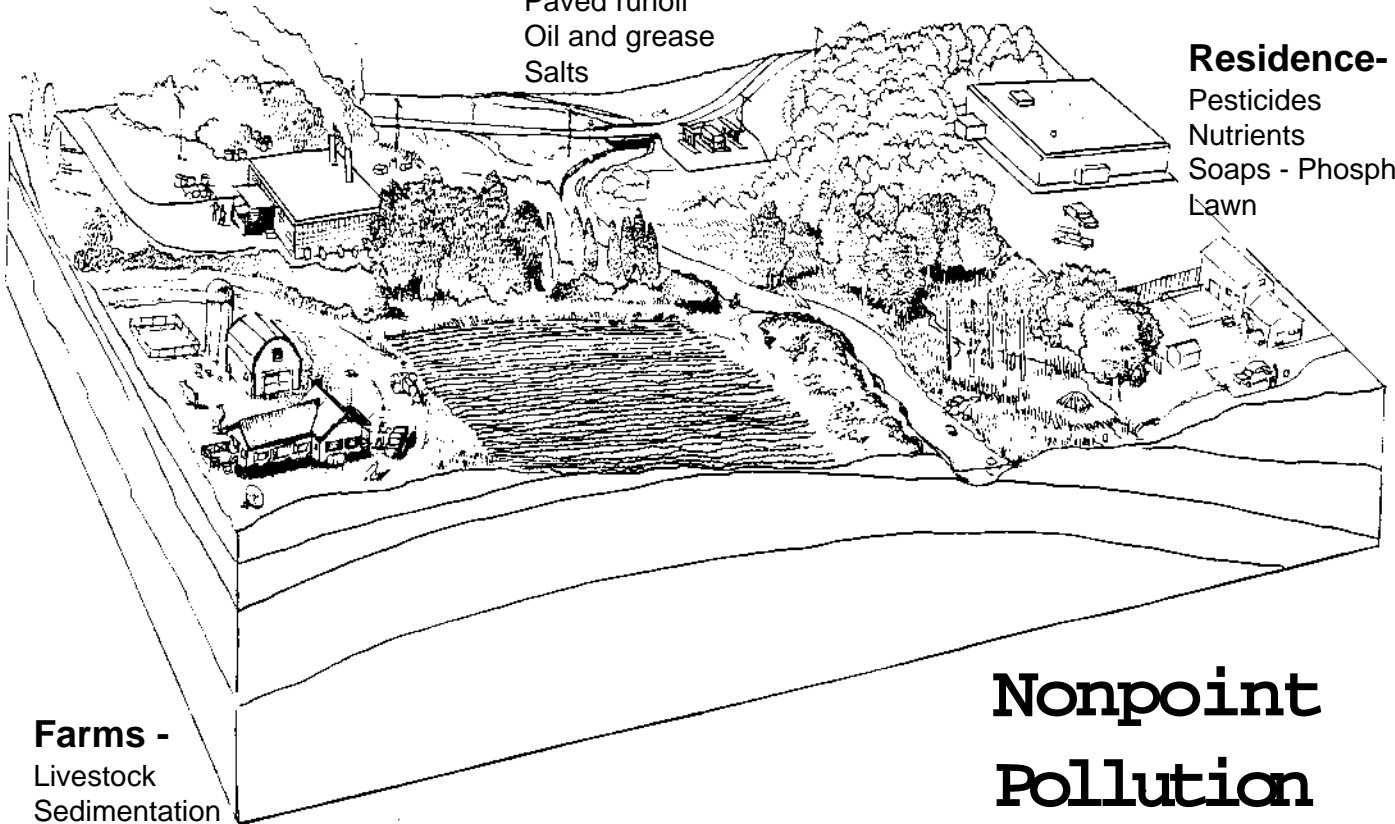
1. If your county has a hazardous waste disposal day, obtain permission for the class to participate and help.
2. If the county does not have such a day, try to organize one.
3. Invite the county engineer or planner to discuss the area's storm water regulations.



Commercial/Industry -
Wastes

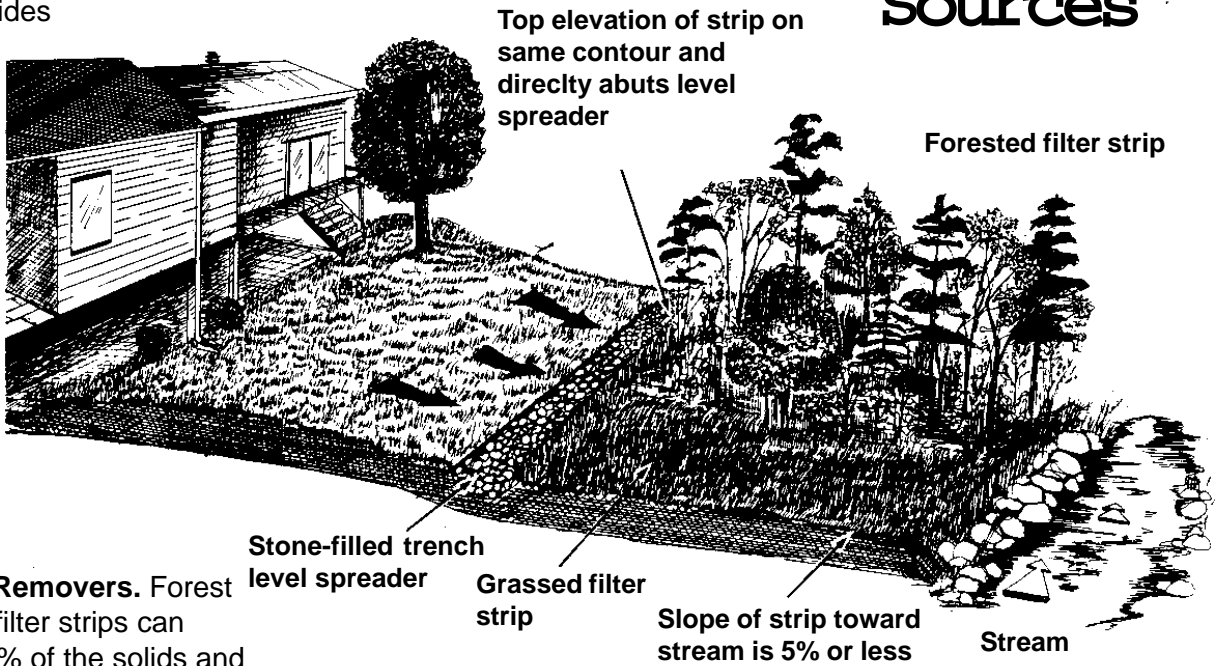
Roads -
Construction
Paved runoff
Oil and grease
Salts

Residence-
Pesticides
Nutrients
Soaps - Phosphorus
Lawn



Farms -
Livestock
Sedimentation
Fertilizer
Pesticides

Nonpoint Pollution Sources



Pollution Removers. Forest and grass filter strips can remove 60% of the solids and 40% of the nutrients in urban runoff.