

## GARBAGE BAG WATERSHED

Watersheds come in all shapes and sizes. The landforms and built structures in your watershed determine where rainwater and snowmelt flows. By building a model watershed, you can simulate flow patterns and demonstrate sources of pollution.

**Suggested grade level:** Upper elementary and middle school

**Materials for each group:** newspaper; 3-5 empty soup, coffee, vegetable cans or cottage cheese containers; hand towel or dish towel; white or light-colored large kitchen trash bag; permanent markers; spray bottle; paper towels; simulated pollutants such as powdered drink mix, cocoa, table salt, food color, detergent, molasses or syrup.

**Special vocabulary:**

- ◆ *Nonpoint source pollution* – pollution that occurs when rainwater or melted snow carries sediment, organic materials, nutrients, or toxins into rivers and other waterways, lakes or ground water supplies.

**Procedure:**

1. Cover a section of the table (about 3' x 3') with several layers of newspaper.
2. Arrange the cans or containers on the newspaper to form hills and mountains.
3. Cover the cans with the towel to simulate a more natural topography.
4. Cut open the trash bag and use it to cover the towel. Adjust it to show hills and valleys, a ravine (for the stream) and a flat area or areas to simulate wetlands, ponds and lakes.
5. Use the permanent markers to define different land uses in your watershed, either with words or illustrations. Possible land uses could include farmland, parks, roads, shopping centers, residential areas, golf courses, construction sites, industrial plants, etc.)
6. Use the spray bottle to generate "rain". Students can provide a weather forecast and sound effects such as thunder and wind. Point out and discuss the drainage patterns – can you see a stream or lake forming?
7. Sprinkle or drip the "pollutants" onto your watershed in the appropriate places to simulate the following nonpoint sources of pollution:
  - ◆ Fertilizers or pesticides (powered drink mix)
  - ◆ Eroding soil from construction sites or newly tilled farm field (cocoa)
  - ◆ Road salt spill (salt)
  - ◆ Household chemicals (food color)
  - ◆ Automotive fluids, used motor oil (molasses or syrup)
  - ◆ Detergent from factory or treatment plant (detergent)
8. Create a second storm event to explore rain's role in transporting pollutants in your watershed, and discuss the problems associated with the stormwater runoff and pollutants.
9. Discuss possible solutions to the pollution problems. What are the advantages and disadvantages of development in your watershed? What kinds of practices could be put in place to help prevent pollution?

**Assessment:** Have students design a second watershed, pointing out changes they made and practices they implemented to reduce the environmental impact of their community.

Adapted from Garbage Bag Watershed Activity developed by Jan Bush, Education Coordinator, Lake County Soil and Water Conservation District, 1992.