

Lake Murray: Love it or Lose it!

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(Adapted from "Life In a Fish Bowl" in Action for a Cleaner Tomorrow, A South Carolina Environmental Curriculum)

Overview

This lesson will help students understand the impact of pollutants on a specific geographic location.

Connection to the Curriculum

Geography, Social Studies, Writing, Art, Science

South Carolina Social Studies Academic Standards

- 3-1.1 Identify on a map the location and characteristics of significant physical features of South Carolina, including landforms; river systems such as the Pee Dee River Basin, the Santee River Basin, the Edisto River Basin, and the Savannah River Basin; major cities; and climate regions.
- 3-1.4 Explain the effects of human systems on the physical landscape of South Carolina over time, including the relationship of population distribution and patterns of migration to natural resources, climate, agriculture, and economic development.

Social Studies Literacy Elements

- F. Ask geographic questions: Where is it located? Why is it there? What is significant about its location? How is its location related to that of other people, places, and environments?
- G. Make and record observations about the physical and human characteristics of places
- H. Construct maps, graphs, tables, and diagrams to display social studies information
- I. Use maps to observe and interpret geographic information and relationships
- L. Interpret calendars, time lines, maps, charts, tables, graphs, flow charts, diagrams, photographs, paintings, cartoons, architectural drawings, documents, letters, censuses, and other artifacts

Grade Range

Grade 3 (May be adapted for higher levels.)

Time

50 minutes

Materials Needed

South Carolina: An Atlas

Fish bowl or similar container filled with water

Eight empty film canisters filled with 1/4 cup each of:

sand	soil
powdered detergent and water	glitter

red food coloring and water

confetti

chocolate syrup

cooking oil

Small floating figure to use as a swimmer

Crayons

Markers

Construction paper

Chart paper

South Carolina Department of Transportation maps

Objectives

1. Students will locate Lake Murray on a map and list characteristics.
2. Students will observe the effects of pollutants on water quality.
3. Students will work with a partner to design a "Love Lake Murray" pamphlet.

Suggested Procedures

1. Assign partners and give each pair of students a *South Carolina: An Atlas* map. Have students locate Lake Murray on the map on page 4.
2. Ask students to brainstorm with their partner to create a list of characteristics of Lake Murray.
3. Make a class chart together. Include characteristics the students generated from the map, such as "near a major city", "formed from the Saluda River," etc. Also include other characteristics students may know, for example, "a place to swim," "good fishing," etc.
4. Discuss how good water quality is important to some to these characteristics.
5. Explain that you will be demonstrating how pollutants could affect the quality of the water in Lake Murray. If possible, place the container of water on an illuminated overhead projector for effect. Choose a helper to place the swimmer in the water. The swimmer will occasionally need to be moved around to stir up the water. Choose eight helpers to "dump" the pollutants into the water at the appropriate place in the narrative.
6. Read the narrative (see attached). Adapt language if necessary.
7. Review how the water probably feels, tastes, etc. Is the swimmer safe? Would you want to swim in Lake Murray if all of these problems occurred on a regular basis?
8. Go through the narrative and brainstorm ways to avoid some of these problems.
9. Have students work with their partner to design a "Love Lake Murray" pamphlet with suggestions to maintain good water quality in the lake. Encourage students to be creative!

Lesson Extensions

1. Have students write a story about Lake Murray.
2. Have students research the history of Lake Murray.
3. Have students go on a field study to Lake Murray.

Suggested Evaluation

Students will be evaluated on class and group participation, and pamphlets will be evaluated.

Materials Provided

Narrative (attached)

Resources

South Carolina: An Atlas and South Carolina Interactive Geography CD-ROM produced and distributed by the South Carolina Geographic Alliance, 1-888-895-2023, www.cas.sc.edu/cege

Narrative

(After each container is dumped, ask the students questions about the how the water would feel, taste, etc. Also, "would it be safe?")

Imagine that you are going for a nice leisurely swim in Lake Murray. (Have student place swimmer in the water). You swim past a marina with many boats buying supplies and gassing up. A few boaters aren't careful and allow gas and oil to spill into the lake water. (Student dumps container with cooking oil in the water).

You continue to swim until you pass by a recreation area. Careless picnickers left a garbage bag on the ground. An animal has torn the bag and now the wind is blowing trash into the lake. (Student dumps confetti into the water).

As you swim on, you notice that summer showers have washed soil and fertilizer into the lake from yards and farmland. (Students dump soil and glitter into the water). Continuing on, you notice that some homes do not have proper septic systems to dispose of household waste. They are illegally dumping directly in the lake. (Student dumps chocolate syrup in the water).

Nearby, wind and water have caused a great deal of erosion and sand is washing into the lake. (Student dumps container with sand into the water).

A lack of zoning has allowed a factory to locate on the banks of Lake Murray. As you swim by, you notice that equipment failure is allowing chemicals and soapy water to spill into the lake. (Students dump containers with red food coloring and detergent into the water).