

LAKE STUDY

LESSON PLAN



WOLF RIDGESM
ENVIRONMENTAL LEARNING CENTER



CLASS DESCRIPTION: An Aquatic Ecology Class

Students will examine the physical, chemical and biological properties of Wolf Lake. Wearing boots, which are provided, and working in small groups, the students will test temperature, pH and dissolved oxygen. They will use nets to collect and examine aquatic animal life, and will evaluate the health of the lake based on their findings.

Total time: 3 hours (two hours outdoors)

Audience: 6-20 students, 4th grade through adult

Activity level: moderate

Travel: 1 1/2 mile

Total uphill travel: 250 feet

GUIDING QUESTION

What does "healthy" mean for a lake? Is Wolf Lake healthy?

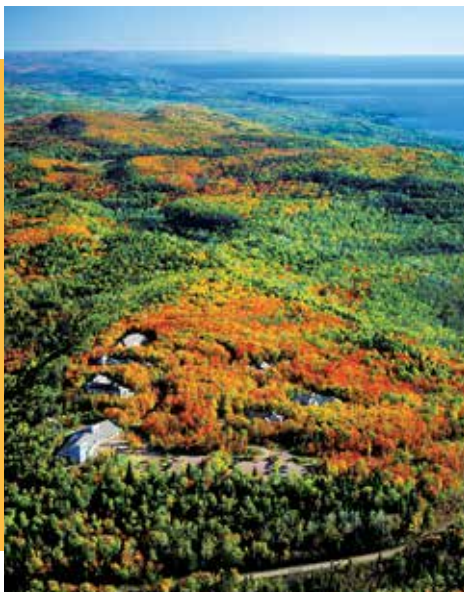
CONCEPTS

1. All living and non-living components of an environment interact with one another to form an ecosystem.
2. A complex natural system is more stable than a simple one, and more able to absorb disturbances.
3. All living things acquire physical and behavioral adaptations to be successful in their environment.
4. Collecting data and making observations and comparisons are processes of knowing in science.

OUTCOMES

Upon completion of the Lake Study class students will be able to:

1. Measure the temperature, pH, and dissolved oxygen of an aquatic system.
2. Examine and report upon the diversity of aquatic creatures captured.
3. Describe how water temperature, pH, and dissolved oxygen affect the living organisms of Wolf Lake.
4. Recommend actions to preserve healthy lake environments.



Our mission is to develop a citizenry that has the knowledge, skills, motivation and commitment to act together for a quality environment.

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Wolf Ridge Environmental Learning Center and the USDA are equal opportunity providers and employers.



Equipment

Classroom Equipment:

- pH scale magnetic board
- pH dot charts
- aquatic creature & pH poster
- water molecule model

At Wolf Lake Site:

- 8 large nets
- knee high wading boots
- 4 plankton nets
- 4 large, white exam trays

Equipment for each group of 4:

- day pack
- rewritable student data sheet
- pond life field guide
- dissolved oxygen test kit
- pH test kit
- safety goggle
- thermometer
- large spoon
- schlurper
- chemical waste bottle

Appendices

- Glossary
- Additional Information
- Optional Activities
- References
- Sources
- Class Sheets
- Spiral Learning Sheet
- Planning Outline

Set-up (15 min.)

- Classroom/class prep description
- Safety Management

I. What do you expect? (15 min.)

II. How can we study the lake? (20 min.)

- A. Physical Properties
 - 1. Temperature
 - 2. Bottom Type
- B. Chemical Properties
 - 1. Dissolved Oxygen
 - 2. pH
- C. Biological Properties
 - 1. Capture and Identification
 - 2. Diversity and Biotic Index
- D. Additional Tools

[Travel to Wolf Lake] (20 min.)

III. What is Wolf Lake like? (80 min.)

- A. Equipment and Site Arrangement
- B. Small Group Research
- C. Meaning of Measurements
- D. Research Wrap-Up

[Return to Wolf Ridge] (25 min.)

IV. What does healthy mean for a lake? (20 min.)

- A. Review
- B. Stewardship Actions

Clean-up (10 min.)