

STREAM STUDY

LESSON PLAN



WOLF RIDGESM
ENVIRONMENTAL LEARNING CENTER

STREAM STUDY



CLASS DESCRIPTION: An Aquatic Ecology Class

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

Total time: 3 hours (two hours outdoors)

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

Activity level: strenuous

Travel: 1 1/4 mile

Total uphill travel: 320 feet

GUIDING QUESTIONS

What does "healthy" mean for a stream? Is Sawmill Creek healthy?

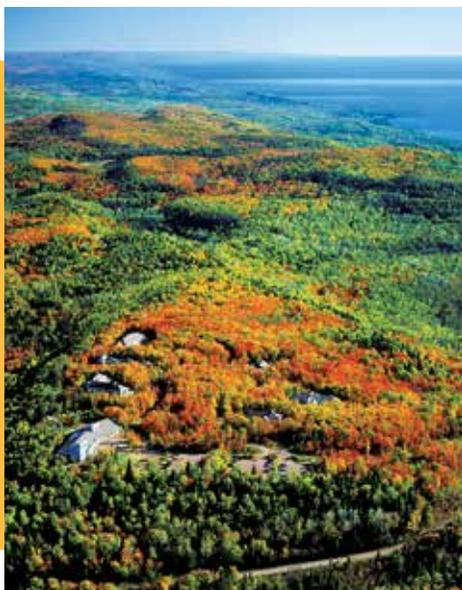
CONCEPTS

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. Collecting data and making observations and comparisons are process of knowing in science.

OUTCOMES

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

1. Measure the water velocity, temperature, pH, and dissolved oxygen of Sawmill Creek.
2. Examine and report upon the diversity of aquatic creatures captured.
3. Describe how water velocity, temperature, pH, and dissolved oxygen affect the living organisms of Sawmill Creek.
4. Recommend actions to preserve healthy stream 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

- Sawmill Creek map (in Kit Room)

Classroom Equipment

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

Equipment for each group

- iPad
- microscope stand
- thermometer
- large spoon
- schlurpers
- 2 large nets
- 2-3 pairs of wading boots
- large white tray
- LabQuest computer
- pH and DO probe
- temperature and velocity probe

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 does healthy mean for a stream? (30 min.)

- A. Landscape-level Observation
- B. Travel to Sawmill Creek Classroom
- C. Stream-level Observation

II. What can we measure? How do we investigate? (20 min.)

- A. Physical Properties
 1. Temperature
 2. Velocity
 3. Turbidity
 4. Depth
- B. Chemical Properties
 1. Dissolved Oxygen
 2. pH
- C. Biological Properties
 1. Capture and Identification
 2. Biotic Index

III. What is Sawmill Creek like? (90 min.)

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

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

- A. Data Crunching
- B. Data Summary
- C. Conclusion
- B. Next Steps...

[Return to Wolf Ridge (20 min.)]

Clean-up (15 min.)