

Reading the River

Summer 2003

Wetlands: An Outdoor Experience

9th Grade

Integrated Science I

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Assessment for Wetland Fieldtrip

This fieldtrip will serve a dual purpose. First, students will learn and demonstrate appropriate techniques for completing water quality testing. Students will be instructed on the proper use of water test kits (dissolved oxygen and pH), and water testing equipment (conductivity meters, secchi disk, thermometers, water sampling bottles). The students will also be given the opportunity to practice using the test kits to collect data. Students' demonstration of their ability to properly use the equipment will be evidenced by their obtaining accurate results while using the kits and equipment.

The second purpose of this trip will be to allow students to gather information and data during the day to be used as representative data of a wetland ecosystem. Data such as water quality values using the test kits, surveys of organisms, including small vertebrates and micro- and macro-invertebrates, and habitat assessments. The students will use this data to complete comparative studies with the water and habitat quality of the pond area at the outdoor classroom at BCHS and the aquaculture tank in the greenhouse of the BCHS agriculture department. The students will also use the data collected to demonstrate concepts previously learned in class. In example, construction of food chains and food webs representing energy flow in the wetlands ecosystem.

Essentially, students should be able to use the knowledge they acquire to enhance their understanding of the importance of water quality and their role in maintaining good water resources.

Kentucky Core Content:

SC-H-3.5.1 - Atoms (e.g., carbon, nitrogen) and molecules (e.g. water) cycle among the living and nonliving components of the biosphere.

SC-H-3.5.2 - Energy flows through ecosystems in one direction from photosynthetic organisms to herbivores to carnivores and decomposers.

SC-H-3.5.3a.- Organisms both cooperate and compete in ecosystems. Often changes in one component of an ecosystem will have effects on the entire system that are difficult to predict.

SC-H-3.5.3b – The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years.

SC-H-3.5.4a – Living organisms have the capacity to produce populations of infinite size. However, behaviors, environments, and resources influence the size of populations.

SC-H-3.5.4b - Models can be used to make predictions about changes in the size or rate of growth of a population.

SC-H-3.5.5a – Human beings live within the world’s ecosystems. Human activities can deliberately or inadvertently alter the dynamics in ecosystems.

SC-H-3.5.5b – These activities can threaten current and future global stability and, if not addressed ecosystems can be irreversibly affected.

Name: _____

Wetlands Fieldtrip Assignment/Data Sheet

You will be visiting the Daniel Boone National Forest-Wetlands Area. During this trip you will be exposed to new content related to ecosystems, specifically a wetlands ecosystem, and you will be relating prior knowledge to a real-world situation. This fieldtrip is considered a learning experience, therefore, you will be expected to learn any new material that you will be presented with while at the wetlands. Thus, it may be advantageous to you to periodically take notes over any information that is new to you. There will be space provided in this packet for you to do so. You must complete all parts of this packet, however, some of it will not have to be finished until returning to school. Please make sure you are familiar with all components of this assignment/data sheet, to ensure that you have a successful learning experience from the wetlands fieldtrip.

1. You will use water quality test kits and equipment to obtain values for the following items. You are to record the values that you collect next to the appropriate item. You will use these values to complete a survey of the water quality of the wetland ecosystem and use as comparable data to the same information that will be collected at the outdoor classroom pond and aquaculture tank in the agriculture department.

Date: _____

Time: _____

Location: _____

Water Appearance: _____
(cloudy, muddy, clear = turbidity)

Dissolved Oxygen: _____

pH: _____

Temperature: _____

Water Conductivity: _____

2. You are to keep a list of all organisms observed at the wetlands. In this section list all organisms and classify each one as a producer, first-order consumer, second-order consumer, third-order consumer, or decomposer.

3. Using the organisms observed at the wetlands, construct a food web containing at least 15 of the organisms. Make sure you include arrows demonstrating flow of energy.

4. Using the organisms observed at the wetlands, list examples of organisms representing each symbiotic relationship and describe how you determined which relationship the organism was involved in.

7. Identify sources of pollution for the wetland ecosystem. Are these sources related to human actions? What measures could be taken to reduce any pollution in the wetland ecosystem?

8. Why are wetland ecosystems important to you? What are valuable resources that wetland ecosystems provide us (humans) with?