National Park Service
Rock Creek Park Environmental Education

AQUATIC ECOLOGY

TOPICS: Water Cycle, Water quality, Adaptations

BACKGROUND INFORMATION:
Water is a non- renewable resource. It cycles through our system in the forms of clouds, precipitation, ground water, streams and rivers, oceans, plants and animals. A single drop of water in a water bottle today may have been a drop drunk by dinosaurs, it might have been part of the glaciers at one time, and it could have been in the ocean when Columbus crossed it.
Conserving and protecting our water from pollution is vital to us as well as to the environment. Once in the water cycle, pollution can often travel, affecting the entire system. For example pollution can be picked up by rain and carried to a hillside. The pollution will then seep into the ground and soil water or runoff into a stream or lake. Plants soak up the water from the soil, and animals drink it from the streams. The pollution can be transferred in the water.
One area that often acts as a water cleaner is a wetland.

Where: Rock Creek Park Nature Center or Peirce Mill

Length: 1.5 hours

Who: 4th- 6th grade classes

Students per group: maximum of 30

Chaperones per group: 4- 5

CURRICULUM BASE:
GRADE 4- explain the water cycle
GRADE 4- describe how animals have different structures that serve different functions in growth, survival, and reproduction
GRADE 4- explain how life cycles are different for different organisms
GRADE 4- explore adaptations animals make that help them meet their needs for survival
GRADE 4- use tools and lab apparatus to observe and measure physical properties

OBJECTIVES: By the end of the program, students will be able to;
1. Explain the water cycle and its major components.
2. Relate one way a wetland is beneficial.
3. Identify three animals that live at least part of their live in water.
4. Describe in their own words the history of water pollution and its impact on the environment.
5. Give an example of how polluted water can effect humans.

AQUATIC ECOLOGY
PRE AND POST- TRIP ACTIVITIES

Prior to your visit to Rock Creek Park, please take a moment to read this presite. The pre- trip activities will help introduce students to the water as a limited resource in need of conservation. The post- trip activity is designed to reinforce the program by enabling students to look at their individual water consumption and possible ways they can help conserve more.

Pre- Trip Activities-

1. WATER SUPPLY ACTIVITY

1. Fill an aquarium with 5 gallons of water, or bring in five- gallon jugs of water. This represents the total amount of water in our ecosystem, the Earth.
2. Remove 2.25 cups of water. This is the total supply of freshwater on Earth. Pour into container #1. Ask group what kind of water is left in the aquarium. (salt water)
3. Take 1.75 cups of water from container #1 and places it in container #2. This represents the water locked up in polar ice caps, glaciers, topsoil, and suspended in the atmosphere.
4. There is 0.5 cups of water left in container #1. Remove half (.025 cups). This water represents the water that is either inaccessible or polluted. The remaining five drops or so represent the fresh water supply that is available and useable to people.
5. What does this tell you about how we should use our water resources? Ask the group how they can use water more wisely. How can they conserve water?

2. I NEED WATER

1. Ask the students to estimate how much water they use in a day.
2. At the start of class, put a bucket beneath a faucet and allow it to drip slightly. At the end of class check it to see how much water a leaking faucet can waste.

Post- Trip Activity-
HOW DO YOU MEASURE UP?

1. Ask each student to complete the attached questionnaire “How Do You Measure Up?”
2. Each student will compare their Total Score to the back to find out how he or she measured up.
3. Use the students’ scores to find the high, low, average and median score of the class.
4. Discuss some of the ways students can help lower their total water use.