Lake Ecology Program Time table
3 Group Rotations

*9:00-9:10 am All groups together for an Introduction. We then divide into three groups (about 15 students with one adult per group).

9:15-9:50 Rotation 1

9:55-10:35 Rotation 2

10:40-11:20 Rotation 3

11:20-11:50 Lunch

11:55-12:35 Rotation 4

12:40-1:00 Conclusion with all groups.

***Start time may vary, but the program runs 4 hours. If you foresee having less than 4 hours for this program, please let us know so we can make special arrangements with you!**

Overview of Post-trip Materials

Included in this packet:

Lake Stratification and Mixing

During the Lake Ecology program, students will be measuring the temperature of the water of the lake at depths of 1-6 meters. We will then graph the results to determine the whether or not the lake is stratified. Students understanding the concept of stratification before the field trip day will then be able to make inferences about what is going on in the lake based on the results.

pH Scale

Students will be testing lake water samples they have collected to determine the pH. This scale shows students the ranges in which a variety of aquatic life survives. Understanding the ranges before the field trip will help students use their test results to begin to determine the quality of water in the lake.

Nutrients: Nutrition or Nuisance

Phosphorus and Nitrogen are nutrients that aquatic plants need for growth. When are they too much of a good thing? During the Lake Ecology program, students will test for phosphates and nitrites in their water samples. They will also learn about the sources of excess nutrients in the Land Use portion of the program.

How Different Soils Affect the Movement of Water and **Porosity and Permeability**

The day of the program, students will conduct soil percolation tests on soils at the preserve. Working through one or both of these activities prior to the day of the program will help students understand concepts such as pore space, porosity, permeability; saturation, and how particle size is related to permeability (and thus, the movement of water through soil). Then, on the day of the program, students will use this knowledge to make inferences about the composition of the soil around the lake, and about how this affects the lake water.

What to do with Soil Samples post-trip.

Soil Composition by Feel

Use the soil samples from the field trip with the Key to Soil Texture by Feel**.**

Soil Composition by Settling

Each group should take the remainder of the soil sample, break it up into loose soil, put it into a plastic jar with water, and shake vigorously until all soil is suspended. Watch it settle out. Rock will settle first, then sand, finally silt. All the Amud@ clouding the water is the clay. Ask the students to estimate what percentage of their soil sample is sand, and how much of what is settled out is silt? The clay will take several days to completely

settle out of the water. Compare the amount of sand and silt compare to their percolation results?

Resources and Suggested Readings

WOW! The Wonders of Wetlands an educator's guide
Available from Environmental Concern
210 West Chew Ave.
P.O. Box P
St. Michael=s, MD 21663
(410) 745-9620

Groundwater: Illinois= Buried Treasure Education Activity Guide
Available from Illinois Department of Natural Resources
325 West Adams Street, Room 300
Springfield, IL 62704 - 1892

Project WET Curriculum & Activity Guide
Available through participation in Project Wet Workshop, see Forest Preserve Teacher Workshop Brochure.

Watersheds: A Practical Handbook for Healthy Water by Dobson and Beck

Who really killed cock robin: Jean Craighead George

Top Ten Things That Affect the Health of a Lake

You

Wetlands

Soil Erosion

Water Clarity

Soil Porosity

Run Off, i.e., bacteria & nutrients

Acid Rain

Point Source Pollution

Non-Point Source Pollution

Ground Water – Bedrock

Soil Permiability, i.e. soil composition & bedrock

Watershed

Surrounding Land Use

Management and/or Restoration

Dissolved Oxygen

Plant Life

Air Pollution

Algae & Algae Bloom

Water Body

Water Cycle

Water Shed

Stratification

Ground Cover

Lake County Forest Preserve