New York State Department of Environmental Conservation
Five Rivers Environmental Education Center
Game Farm Road, Delmar, New York 12054
Phone: (518) 475-0291 • **FAX:** (518) 439-8044
TTY: 1-800-662-1220
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

THE WORLD OF THE POND

The information below is designed to assist you in planning for your trip to Five Rivers Center. A general outline of the lesson is included so that you can plan related classroom activities. Please read the information on this page carefully. It is your responsibility to make sure that parents receive clothing information, and that chaperons are informed of their duties.

Lesson Outline

The following concepts will be discussed.

1. The pond is a rich habitat that is important for much wildlife.
2. Pond plants and animals are interdependent with each other and with the pond environment.
3. Wetlands are fragile ecosystems that can be damaged by humans.

Activities include sampling pond life, identifying pond organisms, and observing different pond habitats. If you would like to take a pond sample for microscopic study in the classroom, please bring a jar with you to the Center. When you arrive, please inform the instructors so they can bring the necessary equipment.

Attached to this sheet are some pre-visit materials which will prepare your students for the lesson at the Center.

Clothing Information

Appropriate clothing is *very important. Students will be out-of-doors for the entire two-hour lesson.* We offer these suggestions for a more comfortable visit.

1. Bring an extra sweater or jacket.
2. Wear a bandanna or a hat for protection from sun and insects.
3. Wear long pants and socks to avoid contact with poison ivy and brambles.
4. If the possibility of rain is predicted, be prepared by bringing some kind of raincoat or poncho.
5. *Wear boots or bring a pair of dry socks*, since it is often muddy near the pond.
6. In cold weather, wear or bring mittens and warm hats.

Information for Chaperons

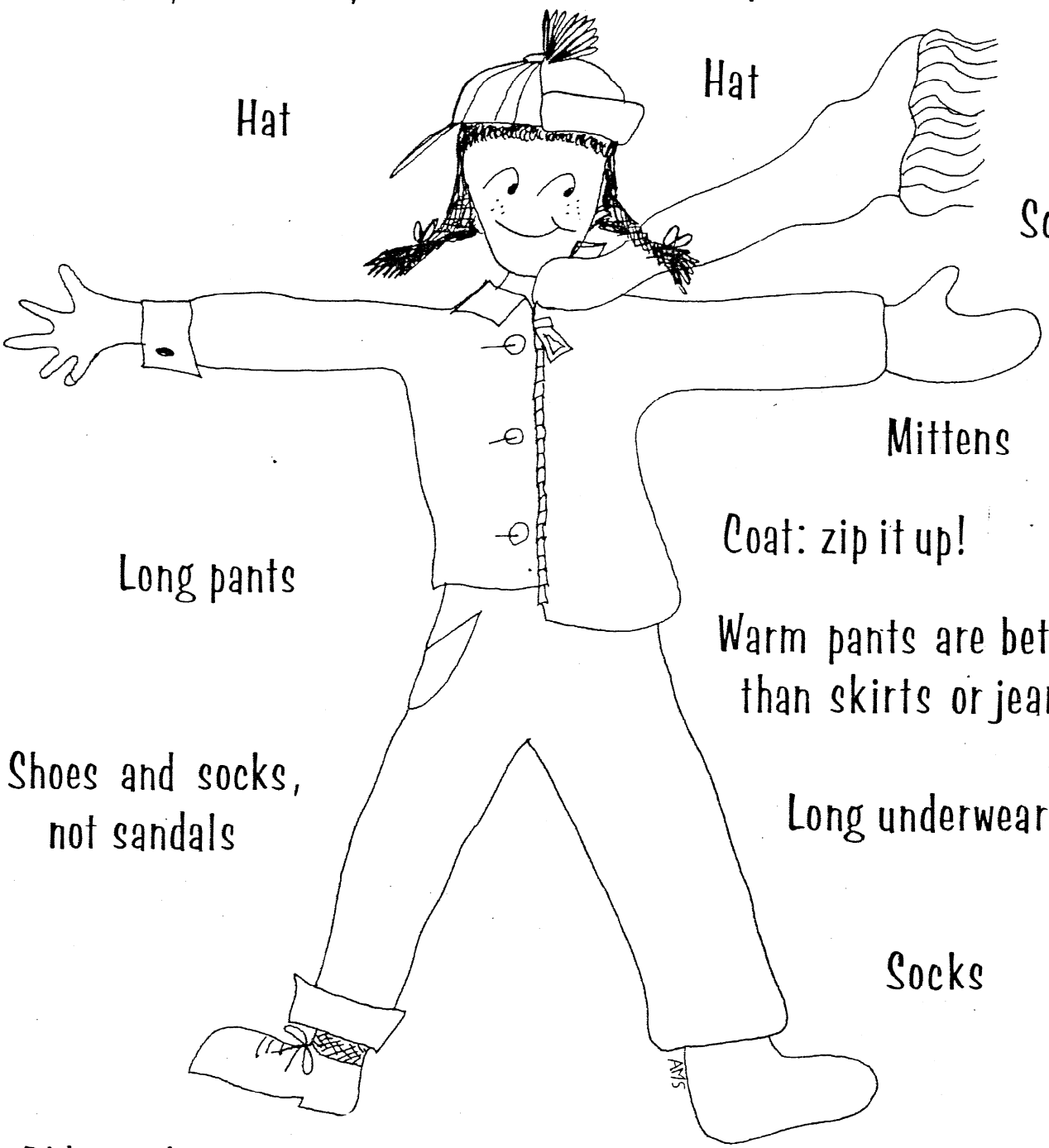
The success of the trail walk depends a great deal on the chaperon. The chaperon is responsible for the following:

1. Maintaining discipline and keeping the students quiet.
2. Keeping the group together.
3. Keeping the group moving when needed or holding the group in a certain place, as indicated by the instructor.
4. Participating and assisting in the activities conducted by the instructor.

DRESS LIKE ME IN:

SPRING, SUMMER, FALL

WINTER



Hat

Hat

Scarf

Mittens

Coat: zip it up!

Long pants

Warm pants are better than skirts or jeans

Shoes and socks, not sandals

Long underwear

Socks

Old sneakers or boots for aquatic lessons

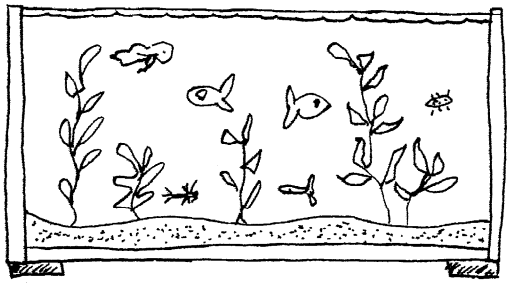
Boots: at least ankle-high

A CLASSROOM AQUARIUM

A pond aquarium is a wonderful teaching tool. It allows prolonged close-range observations of fascinating water creatures in a relatively natural state. A simple aquarium can be made in a quart jar if a plant is included to provide oxygen. For a larger aquarium a light and bubbler is all the equipment needed to sustain most invertebrates and a fish or two.

Collecting for an Aquarium

In order to establish a balanced aquarium, some basic ecological concepts must be kept in mind. There must be enough food for everyone! Only a few predators should be included, or they will eat their prey faster than the prey can grow, and eventually starve themselves.

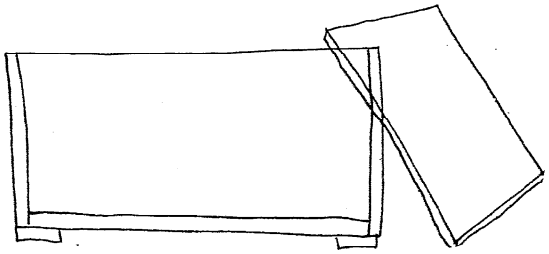


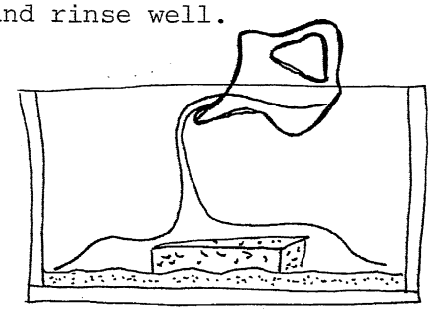
A large predator can survive in a tank containing smaller insects and crustaceans, as long as cover is provided for the prey to hide in. If many predators are desired, their food needs will have to be provided from an outside source such as regular pond collections or some appropriate commercial food.

Making an Aquarium

You will need:

- container with loose lid - clean it thoroughly with salt and water to get rid of bacteria, and rinse well.





- water - clear pond water, if possible. If not, use tap water that has stood in an open container for 48 hours to permit evaporation of chlorine.
- gravel and/or sand - wash until water is clear.
- plants - green plants found growing in the water where you find your animals. Get roots, if possible.
- snails - one or more freshwater snails to keep the aquarium clean.

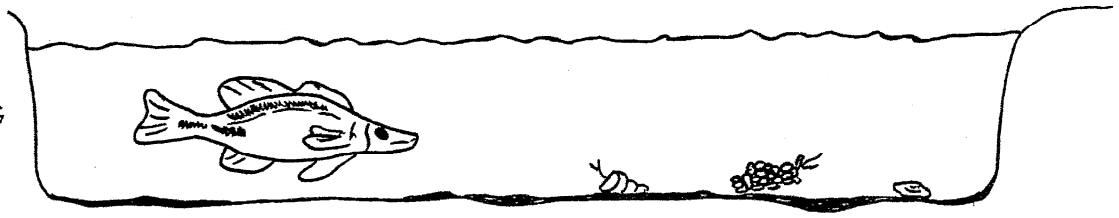
What to Do:

1. Put two inches of sand or gravel on the bottom of the tank.
2. Put a sponge on the sand to break the force of the water while filling aquarium about half-full. Remove sponge.

POND SUCCESSION

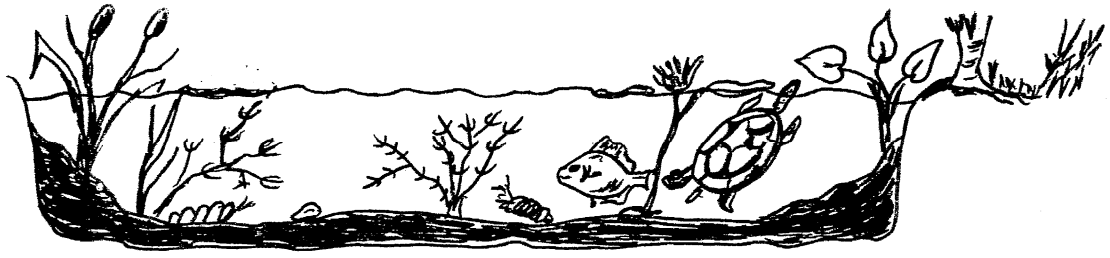
Succession is the gradual replacement of one community by another. When a pond is first established certain pioneer plants inhabit its shores and bottom. Through death and decay these pioneers add nutrients to the pond that invite other types of plants. Mud and silt are also washed into the pond. As sediment builds up, still other more demanding plants replace the earlier ones. Each different type of plant life invites different types of animal life. As continued sedimentation increases, the amount of open water decreases. Eventually pond will give way to marsh, marsh to bog and bog to meadow.

YOUNG POND



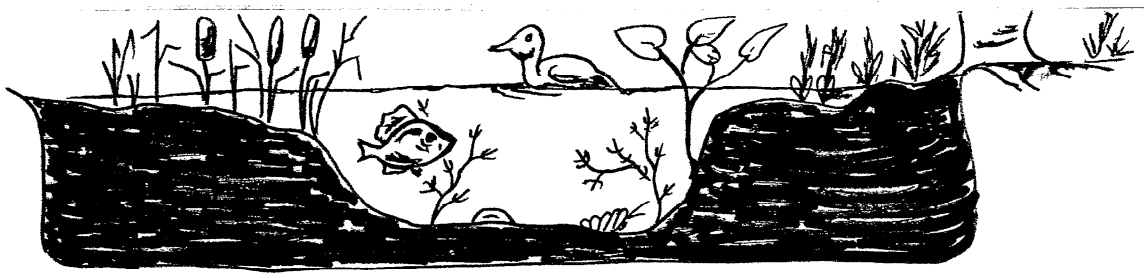
A young pond is usually cool and clear with little bottom vegetation.

MATURE POND



A mature pond supports the greatest abundance and variety of plants and animals.

OLD POND



The old pond has very little open water. It is also warmer and may be known as a marsh.

Questions to think about and answer:

1. Name two things that cause ponds to change.
2. If a pond is "young" would you expect to see cattails there? Why/why not?
3. Would a duck prefer to live in a young, mature, or old pond? Why?
4. Would you prefer to swim in a young or old pond? Why?

GLOSSARY: THE WORLD OF THE POND

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Adaptation: An adjustment to the environment; a change in an organism's characteristics that improves its chances for survival in a particular habitat. Example: a duck's webbed feet help it to swim.

Decomposers: Organisms, usually bacteria and fungi, which break down dead plants and animals and their waste products into simpler forms. In the process, they release chemical substances stored in the dead bodies and make them available to be used again.

Food chain: A transfer of energy through an ecosystem by the producers (food makers), consumers (plant or animal eater), and decomposers. For example, algae is fed upon by a fish, which is in turn eaten by a heron, which eventually dies and is decomposed by bacteria.

Habitat: The place where a plant or animal lives, finds food and shelter and raises its young.

Larva (plural, larvae): An immature stage in an animal's life history, during which its form differs from that of the adult, such as the "wriggler" stage in the development of a mosquito or the caterpillar stage in the development of a moth.

Metamorphosis: A change in the form of a living thing as it matures, especially the transformation from a larva to an adult. Complete metamorphosis involves four stages - egg, larva, pupa, adult. Incomplete metamorphosis involves three stages - egg, nymph, adult.

Nymph: The immature form of certain insects which undergo incomplete metamorphosis. This stage resembles the adult. Examples: dragonfly, mayfly.

Predator: An animal that lives by capturing other animals for food. Examples: dragonfly nymph, frog.

Prey: Animals that are hunted by other animals for food. Examples: mice, rabbits, insects.

Pupa (plural, pupae): The relatively inactive stage in certain insects during which a larva changes into an adult. Examples: mosquitoes, midges.

Succession: The gradual replacement of one community of plants and animals by another, over a period of time.

A TYPICAL POND FOOD CHAIN