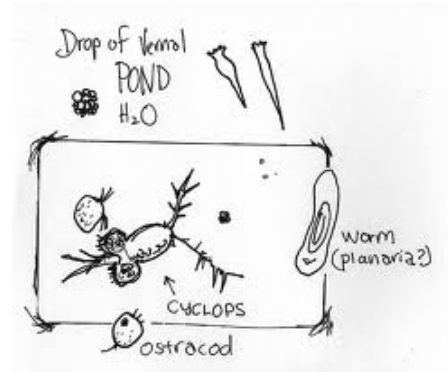


Name: _____ Class: _____ Date: _____

Pond Biodiversity

Learner Outcomes:

- Investigate life forms found in fresh water and salt water, and identify and interpret examples of adaptations to these environments (e.g., describe and interpret examples of fish and invertebrate species found in a local freshwater environment)



Key Terms:

Diversity

Population

Adaptation

Ecosystem

Invertebrates

Microorganisms

Zooplankton

Phytoplankton

Wet mount

Background Information: From a distance, pond ecosystems appear to be peaceful bodies of water surrounded by lush grasses, vibrant flowers, chirping birds, buzzing insects and scurrying mammals. Beneath a pond's quiet surface you will find a bustling community of microscopic and larger organisms, each adapted for surviving in an aquatic environment.

Investigative Question: What kinds of organism are found in a freshwater pond ecosystem and how are they adapted to live in an aquatic environment?

Materials:

Microscope

Magnifying glass

Petri dish

Eyedropper

Microscope Slide

Coverslip

Methylcellulose solution

Procedure:

1. Collect a sample of pond water from a local source. Be sure to keep the top of the container open to allow the organisms inside to get oxygen.
2. Pour some pond water into petri dish and observe the organisms in the water using a magnifying lens. Record the number and types of organisms you see.
3. Using an eye dropper place a small sample of pond water into the well of a microscope slide, and cover with a coverslip. This is called a wet mount.

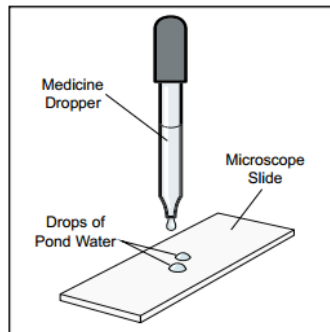


Figure 1. Making a Wet-Mount Slide

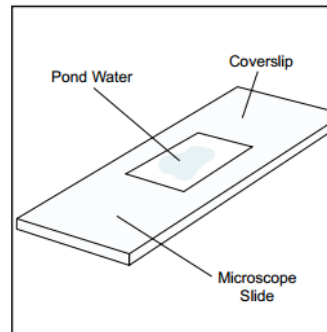


Figure 2. Wet-Mount Slide

4. Observe the microscopic organisms under the microscope. If they are moving too quickly to keep in your field of view add a couple of drops of methyl cellulose solution to slow them down.
5. Record your observations by sketching each organism, estimating its approximate size, and by classifying it as a vertebrate, invertebrate, phytoplankton, zooplankton, etc. Also note and record any obvious adaptations it has for living in an aquatic environment.
6. Use a classification guide to determine the identity of each organism and record its name.

Observations:

Analysis:

1. What kinds of adaptations did you observe for locomotion?
2. What kinds of adaptations did you observe for acquiring food?
3. What did you notice about the size of most of the organisms found in the pond water? How is size considered an adaptation?
4. What did you notice about the color of the micro-organisms you observed?
5. What physical characteristics did you use to classify the organisms you observed?

Conclusion:

Describe three of the most common adaptations of organisms that live in an aquatic environment.

Extension:

1. Use online resources to explore the characteristics and adaptations of other pond organisms. Create a short movie, cartoon, book or other form of media illustrating how each of these organisms is adapted to an aquatic environment and their niche within that environment. You may want to consider the following resources:

<http://www.microscopyu.com/moviegallery/pondscum/>

<http://micro.magnet.fsu.edu/moviegallery/pondscum.html>

<http://www.microscopy-uk.org.uk/index.html?http://www.microscopy-uk.org.uk/pond/>

2. Research at least 5 microorganisms found in salt water aquatic environments. Create a multi-media presentation to compare and contrast the characteristics and adaptations of salt water organisms and fresh water organisms.
3. Perform a field study of a local freshwater ecosystem and study the larger organism found within and around the body of water. Compare the adaptations of larger organisms with the microscopic organisms you identified in this investigation.