

Reading the River
Summer of 2004

Pond Study

A Unit for Grade 4 Science

Susan Litton
Taylor Mill Elementary

A Pond Study

Grade Level: 4

Objectives:

In this lesson, students will:

- Use measurement tools to observe and study a small pond
- Graph results
- Identify “change over time” in the pond
- Use their data to persuade the PTA to help fund their project

Program of Studies

Scientific Inquiry

- Use simple equipment, tools, skills, technology, and mathematics in scientific investigations

Conceptual Understandings

- All animals depend on plants for food.
- Organisms change the environment. These changes may be detrimental or beneficial.

Core Content:

Life Science

- 3.3.1 Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.
- 3.3.2 The world has many different environments. Distinct environments support the lives of different types of organisms. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.
- 3.3.3 All organisms, including humans, cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; other changes are beneficial.

Essential Question:

What changes are needed to make our pond an environment that will support plant and animal life?

Activity:

1. Students observe the pond in our school's courtyard. They identify any living and non-living items in the area.
2. Students measure temperature, depth, and ph to check the current condition of the pond.
3. Students research what is needed in a pond that supports plant and animal life in our area.
4. Students write letters persuading PTA to support their project of adopting the pond.

Resources :

- Magnifying glasses
- Plastic tubs
- Thermometers
- Meter sticks
- Nets
- Ph kits
- *Crinkleroot's Guide to Walking in Wild Places*
- *Signs Along the River*

Procedure:

1. Discuss with students what they know about a pond. Create a KWHL chart. Read *Signs along the River* and discuss what living and non-living things you find near water. Update the KWHL chart.
2. Visit the pond. Students, in groups of 3 to 4, identify living and non-living things found around our pond.
3. Review measuring in metrics with students in the classroom. Identify the appropriate metric measurements for depth and temperature. Discuss the appropriate way to collect organisms from the pond.
4. Visit the pond and take these measurements over several days. Count the number of organism in their tubs.
5. Share data back in the classroom.

6. Discuss why some numbers are so different. Average data to find the class average for air temperature, water temperature, depth of pond, ph, and number of organisms.
7. Update the KWHL chart. Discuss the “H” How will I learn the information I need?
8. Research at computer lab, in library and articles given from the local pet store to determine what they think makes a healthy pond.
9. Write a letter of persuasion to the PTA and our principal asking for help with funding and supplies for their project.

Evaluation:

1. With guidance from the teacher, students will create a T-chart determining what is necessary for a distinguished persuasion letter, a proficient letter, and an apprentice letter.
2. They will determine as a group what data is important to include in their letters.
3. A classroom generated rubric will be created from their information above.