

This resource was developed by:

The Wagner Free Institute of Science and its supporters
The National Science Foundation, through NSF# 0139303 and #0440506
Saint Joseph's University

Sample Lesson from Grade 4 Unit: Wetland Ecosystems Unit Week 5: What is a Wetland?

Standards:

Pennsylvania Academic Standards for Environment and Ecology

- 4.1.4 C Identify living things found in Water Environments
- 4.1.4 D Identify a wetland and the plants and animals found there
- 4.3.4 C Understand that the elements of natural systems are interdependent.
- 4.7.4 A Identify differences in living things.

Pennsylvania Academic Standards for Science and Technology

- 3.1.4 A Know that natural and human-made objects are made up of parts.
- 3.1.4 B Know models as useful simplifications of objects or processes.

Materials:

- Bill Nye video of Wetlands
- 6 two-liter bottles with drainage holes
- Charcoal
- Small pebbles
- Cotton
- Sand
- Twigs, dry grass and reeds
- 6 circles of turf
- Dirty water
- Bins to gather water
- Computer and Projector

Lesson:

1. **[Review]** Begin with a review of the water cycle from last week. Explain that today we are going to start our investigation into the wetland ecosystem. (5 minutes)
2. **[Wetlands Video]** The class will start with watching the Bill Nye video about Wetlands. The video covers the functions of wetlands, the types of wetland, and the threats to wetlands. Read questions together before starting the video to introduce concepts and vocabulary. At the appropriate times, stop the video to go over individual workbook questions. Discuss each question as a class. (40 minutes)
3. **[Filtration Experiment]** Explain that today we are going to investigate one of the main functions of a wetland. We are going to accomplish this by using a model. Make sure the students understand what a model is and how it is used. In six groups, students will have the material to set up two filtration columns that will demonstrate the function of wetlands as a natural filter. Have students make predictions about the outcome of the experiment. (35 minutes)
 - a. The columns will be in two liter bottles that have holes punched in the bottom to let water drain. One column will have these layers, charcoal, pebbles, cotton, sand, twigs and reeds, and turf. The second column will have twigs, reeds, and turf (only plant material).
 - b. Students will pour equal amounts of dirty water in each column. The water that drains will be collected and compared to demonstrate that the column with many layers filters the dirty water better than the column with only plant material.
 - c. The connection should be made that the column with many layers is a model of a wetland and demonstrates the function of wetlands as a natural filter.
4. **[Workbooks]** After cleaning up, students will work in groups to complete worksheets in the workbook that will cover key points from the filtration activity and Wetlands in general. As they finish they will independently write in their journal. Once every group is complete discuss results to make sure students have the correct impressions. (10 minutes)

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Writing Topic:

- What is a wetland ecosystem? What function of a wetland did we investigate today and why is this important?