

Shadow Lake Bog Improves Water Quality

*Shadow Lake Bog is a special type of wetland (**Palustrine**), characterized by highly acidic, water-logged (**hydric**) soils nearly devoid of oxygen (**anaerobic**), and dominated by spongy mosses (**Sphagnum moss**).*

Bogs are typically found in formerly glaciated areas and are estimated to be over 10,000 years old, It is impossible to recreate this vital and dynamic ecosystem.

-Wetland Functions and Values-

- * **Education & Research***
- * **Recreation, Tourism & Cultural Value***
- * **Fish & Wildlife Support (Reservoirs of Biodiversity)***
- * **Climate Change Mitigation***
- * **Water Quality Improvement:***
 - o **Wetlands/ Bogs are natural sponges***
 - o **Wetlands filter substantial amounts of contaminants***
 - o **Drastically reduce flood damage***
 - o **Recharge aquifers***
 - o **Storm/ Erosion control***
 - o **Water supply***

Shadow Lake Bog, Renton, Washington
Water and Water Quality of the Bog

Learning Objectives: Students will gain a specific understanding of how water characteristics change at Shadow Lake bog. Students will also gain basic skills in water field testing and understand a model of how water impacts wetlands.

Essential Learning Outcomes:

Communication: 1.1.1, 1.1.2, 2.1.1

The Arts: 3.2

Additional Outcomes listed for each station.

Environmental Education Guidelines for Washington State: Please see the full appendix at the end of the field trip packet.

Materials:

Clipboard	Pencil
Hache dissolved oxygen test 5 preparations	5 beakers
pH test papers	5 pipettes
5 Secchi discs on string	Water Quality data sheet
5 rulers	Microscopes with samples
Watershed Model	Blue and Red powdered drink
Watershed Model Reflection	Thermometers
Scope-On-A-Rope	Poster Paper
Markers/Crayons	glue
Staples	tape

Lesson:

Welcome to Shadow Lake Bog! Have any of you been here before? (yes/no) Well, today we're going to look at the bog and pay special attention to the water here. We will be working in small groups so that everyone will get a chance to do everything! (*refer to poster schedule chart*) As you can see, each group will be doing different things at different times. Each of you will perform chemical tests, and learn about the water cycle. You will also use a model to see how a watershed works and also learn about ground water. You will also get to answer the question, 'Is there a world water shortage?' When we are finished, everyone will meet back here and have a short time to create a poster showing what you have learned. Are you ready? Here we go!

Students will rotate in their groups determined by the schedule posted. Each group will have an adult volunteer to monitor student behavior. All personnel will meet back at the interpretive center driveway for the poster production and

presentations. Poster presentations can also be made back in the classroom if time expires on the site.

POSTER PRODUCTION AND PRESENTATIONS:

Welcome back! I hope everyone has had a great time! We are now going to stay in small groups and use the tables here to produce your poster. Each poster should have the following information (*refer to sample poster on easel*):

Names of everyone in the group

Today's date

All water quality data sheets

All watershed reflections

One comment from each member on something new they learned

You can staple your lab sheets together or keep them apart. You can draw and decorate your poster however you want. When we are finished, each group will have about 3 minutes to present your poster and let us know what you learned.

If you finish early, you are welcome to come to the microscope table to look at some samples and experiment with the "Scope-On-a-Rope". An adult will be there to assist you.

When students are presenting, the rest of us are going to show respectful attention at all times. Please don't talk while presentations are going on and give each presenter positive applause when it is done.

Presentations will proceed as time allows. Reflection cards and questions from the audience are optional at this time.

Those were terrific! Thank you so much for coming today! Make sure to check our website at www.shadowhabitat.org to see what's new at the bog and look for information about your visit. You may even see your own name! Please make sure to check for any garbage in your area, and now you need to listen to your teacher for instructions.

Assessment:

Complete water quality data sheet

Complete watershed reflection

Complete group poster

Presentation

See "Post-Trip Activities" in the complete field trip packet

Water and Water Quality at the Bog Station Schedule

Station	Water Cycle	Chemical Testing	Watershed Model	Groundwater Travel	World Water
Group A					
Group B					
Group C					
Group D					
Group E					

Students can be assigned groups at school before coming to the bog. This will save time and allow for nametags or badges for group identification. Shadow Lake Bog personnel can individualize the schedule board with group or individual names if given the information in advance.

This schedule is an example of a group of 30 students split into 5 groups of 6 students. Any accompanying adults can be distributed equally among the groups. At 20 minutes, a whistle will sound and everyone will rotate to the next station. A sample field trip would proceed as follows:

- 10:00am-10:15** **Welcome, review schedule chart, break into groups.**
- 10:20-10:40** **Station 1**
- 10:45-11:05** **Station 2**
- 11:10-11:30** **Station 3**
- 11:35-11:55** **Station 4**
- 12:00-12:20** **Station 5**
- 12:25-12:40** **break/snack**
- 12:45-1:00** **Mural presentations, departure**