

pH Testing – Outdoor Lesson

Grade Fourth Grade (4th)

Lesson Fall outdoor

Time 55-60 minutes

Materials *From the Portable:*

- Flipbooks for this lesson (includes the datasheet)
- One bin for each group – you can double-check to make sure you have a complete kit. There is a list taped on the lid of each bin.
- First Aid kits and garbage bags for each group

Objective:

To teach students how to test the pH of stream water and soil and determine if the pH level is viable for salmon and other wildlife to survive.

Before the lesson:

1. A couple days before the outing, send a reminder email to the volunteers and let them know to arrive at the Watershed Portable at least 20 minutes before the scheduled departure. You will want to have plenty of time to go over the instructions of the soil and water pH testing kits with them.
2. Obtain the volunteer/student list from the teacher. This is the list of what students will be going with each volunteer. Make sure you have one complete bin for each group.

Day of lesson prep:

1. Arrive at the watershed portable in plenty of time to assemble the materials and review the lesson.
2. When you check in at the office, let them know you are going on an outing to the watershed. Either you or your teacher can make sure that the secretary has the walkie-talkie on during your outing time. Or, alternatively, you can give them your cell phone #.
3. Visit the classroom to see who needs boots and either bring the students to the portable to get them or find out their sizes and bring them to the classroom. At least 3 students per group will need to get into the stream, so try to make sure all students have boots.
4. When the volunteers arrive, introduce yourself and review the contents of the bin. Also make sure each of them has a First Aid kit and a garbage bag (in case you find litter to pick up).

pH Testing – Outdoor Lesson

5. As you review the lesson, make a special note that the test tubes need to be rinsed before each test and the “dirty” water needs to be collected in the Hazardous Waste jars. Explain the procedure for testing the pH for soil and water. There are detailed instructions in the bags containing both the soil tester kit and the water pH testing kits as well.

Lesson:

1. Introduce yourself to the students and ask them some review questions as a group:
 - a) Who remembers what we are going to do on our outing today?
 - b) Why do we want to test the pH level of stream water?
 - c) What is the pH scale?
 - d) Who remembers about where our stream water should be on the pH scale for salmon to survive?
 - e) Remember to stay with your assigned group leader and follow the guidelines for working in the watershed.
2. Start walking as a group to the watershed sites. Have the group stop at the cross walk and remind them to “stop, look and listen.” Have a parent or two go out and guard crosswalk. Remind student and parents that students are on the inside of the white line and parents are on the white line.
3. Determine what time each group should meet back up to return to school. Direct groups to different sites within the watershed to complete experiment. **NOTE: Make sure to remind all students and volunteers to wear goggles and gloves!**
4. As the leader, if you don’t have a group yourself, you can periodically check-in on the groups and be sure they are guiding the students through the completion of the experiment and answer any questions that arise.

PLEASE NOTE: The Hazardous Waste Jar will be carried back to the school/watershed portable with its contents to be disposed of properly down the school drains.

pH Testing – Outdoor Lesson

Finishing Up:

1. Follow your teachers directions on returning to classroom. Make sure to collect all boots.
2. Be sure to empty Hazardous Waste Jars down school drains in school drains. Rinse test tubes and soil test kits well. Use magic eraser to clean all data sheets.
3. As supplies are returned to bins, please ensure that there is a complete kit (refer to list on inside of bin). If anything is missing or damaged, please notify the Watershed Chair.
4. If time permits, you and/or a volunteer can put the new bead on each of the students necklaces.
5. Thank parent volunteers or send them an email later.
6. When you check out, make sure the office knows that you have returned from your outing.
7. Please notify the Watershed Chair if you have any feedback or have noticed any supplies are missing and/or damaged.