Water Quality Leader Guide

Purpose

The purpose of this station is to determine the water quality and flow rate of the stream. Your station will be flagged in _____ [insert color].

Preparation

You will lead groups of students (no more than 20 per group) for _____ [insert duration, in minutes]. Allow five to ten minutes at the end of your session for clean-up before a new group of students arrives at your station.

Be sure to review the "Water Quality Station Instructions" and "Water Quality Data Sheet" in advance to ensure that you understand everything covered in the lesson. Throughout the lesson, encourage students to ask questions.

You will use the following supplies at your station:

Six protected thermometers
One 100-foot cloth tape
Two stopwatches
One large GREEN water monitoring kit
Pencils or pens
Station instructions
Buckets
Two turbidity tubes
Wire flags
Four small GREEN water monitoring kits
Nine clipboards
Extra vials and bottles
Student data sheets

The Activity

To begin the lesson, introduce yourself and describe your job position. Discuss the importance of water quality to the stream's ecological health, and provide an overview of the various chemical characteristics that determine water quality. Invite the students to participate by sharing their ideas and question.

Present and review the "Water Quality Station Instructions." Break the students into pairs and distribute one copy of the "Water Quality Data Sheet" to each pair. Conduct the individual tests for dissolved oxygen, turbidity, pH, temperature, and nitrates. Be sure that students understand to be careful when wading in the stream. Remind them that the rocks in the stream may be very slippery.

Take one test for coliform bacteria each day (i.e., you need not collect a sample for this test with all three groups) and return the sample to the site director for incubation and class observation after the field day.

After conducting the water quality tests, gather the entire group for a brief discussion. Review the sample findings and discuss what the results for each test indicate about the water quality of the stream. If there is adequate time, discuss at what season of the year the highest stream flow would be expected and why.

Ask the students to clean the supplies. **Collect the students' data sheets before they leave for the next station, ensuring that they have included their names on the sheets.** Organize and prepare your supplies for the next group. At

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the end of the day, be sure to submit all student data sheets to the lead teacher.

Optional

You will probably not have time for optional activities at this site, but if you do, lead the students in measuring the average depth at three points in the streambed. Students will use this data during follow-up classroom work to calculate the volume of water flow in the stream.

Important Details

- Visit and organize your station before the first trip.
- Check that your supplies are in place and functioning, and know how to use them.
- Teachers are familiar with the tests and are valuable tools for the station. There may also be parents and volunteers with your student groups.
- Report any safety concerns, accidents, or needs to the appropriate persons.
- Teachers should handle any discipline problems if they occur.
- Be prepared to start by _____AM [insert time] and to finish around _____PM [insert time] each day. If you are unable to be at your site due to an emergency, inform the site director as soon as possible.
- Field trips will be held during unfavorable weather unless a safety issue exists (e.g., lightning, floods, heavy rain, etc). You will be notified as soon as possible if the trip is cancelled, and will be informed of the make-up day. On the day of the trip, the project director will decide no later than _____ AM [insert time] if a cancellation is necessary. After that time, you may call _____ [insert phone number] about the status of the field trip that day.
- Bring a bag lunch if one is not provided.
- Debriefing will be held with the site director between _____ and _____[insert times].
- You and your co-leader(s) can organize and modify your station as works best for you, making sure to cover the basics and doing your best to ensure that the students understand the importance of water quality to the stream and riparian forest ecosystems.
- Have fun with the students!