



## Macroinvertebrate Leader Guide

### Purpose

The purpose of this station is to demonstrate how aquatic animals are integral to the riparian forest buffer ecosystem and are indicators of water quality. 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 “Macroinvertebrate Station Instructions” and “Macroinvertebrate 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:

*Four seine nets with poles*

*Eight brushes*

*One white sheet*

*Two plastic ice-cube trays*

*30 Petri dishes*

*Six eye droppers*

*Pens or pencils*

*Two folding tables*

*Colored flags*

*Four plastic three-gallon buckets*

*Ten pairs of tweezers*

*Four macroinvertebrate identification place mats*

*Two macroinvertebrate flash card sets*

*Five clip boards*

*Student instruction sheets*

*Student data sheets*

### The Activity

When students arrive, begin the lesson by introducing yourself and describing your job position. Discuss the importance of riparian forest buffers and water quality to the health of macroinvertebrates. Talk about how macroinvertebrates are an important element of the food web, and are an essential component of a balanced riparian forest community. Ask the students to participate by sharing their ideas, and throughout the lesson, encourage students to ask questions.

Present and review the “Macroinvertebrate Station Instructions.” Follow the directions to collect macroinvertebrates from the stream. 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.

Depending upon the size of the stream and proficiency of the students, you may choose to have two or more groups of students sampling at one time. Once students have sampled a stream section, mark that area with flags to prevent a resample.

Guide the students in identifying the macroinvertebrates in the collection samples, using the identification place mats. Instruct students to record their findings on their “Macroinvertebrate Data Sheet.”

After completing the macroinvertebrate assessment, ask students to gently return the macroinvertebrates downstream of the area sampled, and to clean their supplies. Bring the entire group together for a brief discussion of their findings. Discuss the sample findings and what the existing macroinvertebrate species indicate about the water quality and overall health of the stream.



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

### **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 how macroinvertebrates are indicators of the stream's water quality.
- Have fun with the students!