

Benthic Macro Invertebrate Classroom Module

Itemization of Deliverables and Expenses

Groups of students from area high schools and colleges collect and identify samples of aquatic insects and other stream-dwelling organisms (benthic macroinvertebrates, or BMI) following CSI protocols and under the direct supervision of a CSI BMI representative. Results are entered into a spreadsheet and are used, along with community volunteer chemical monitoring data, when available, to evaluate stream health over time. All participating students have an opportunity to contribute to a scientific survey with established protocols through a certified lab. Students receive focused training which includes an introduction to the principles of environmental monitoring, the work of the Community Science Institute and students' role in it, aquatic invertebrates and their place in the ecology of healthy streams, BMI sampling and identification techniques, and calculation of BMI parameters used in the evaluation of stream health. Schools retain electronic files and paper copies of results as well as the preserved, identified and sorted aquatic insects from their sample as a set of voucher specimens for use in future BMI monitoring activities. All fully-participating students receive a certificate from CSI.

Cost of BMI Module: \$840 + travel

School Receives:

- Initial classroom visit by BMI Rep including an introduction to the principles of environmental monitoring, aquatic insects and their relationship to ecosystem health, a “virtual tour” of CSI and the CSI website and database, and training for aquatic insect sampling that will happen on another day.
- Use of CSI equipment and supplies such as nets, measuring equipment, containers, alcohol, ID keys, microscope that plugs into computer, computer projector.
- On-site guidance by BMI Rep for field sampling event and up to eight hours of classroom identification and data processing sessions.
- Identification finalization and verification by BMI Rep.
- Final classroom visit by BMI Rep including a presentation of student data, wrap up and conclusions.
- Aquatic insects from each sample, fully preserved, identified, and sorted as a set of voucher specimens in glass dram vials to remain with the school.
- Certificates of BMI proficiency in Hudson Basin River Watch stream monitoring protocols for each student who fully participates.
- Customization of program to meet each school/college’s particular interests and needs, including the potential for working with faculty towards continuing a quality stream monitoring program with reduced overhead cost for CSI support going forward.

Approximate CSI Time Commitment:

Program Activity	Estimated Time for BMI Rep	Total
Initial Planning and Communication with faculty	2 hours	2
Initial Classroom Visit (training and info session)	1 hour	1
One Field Sampling Event	2 hours sampling + 1 setup/cleanup	3
ID Sessions, organized around class schedule	Example schedule: 2 X (3 hrs + 1 setup/cleanup)	8
Final Classroom Visit (results and conclusions)	1 hour	1
Prep; ongoing communication with faculty; consult with other CSI staff; finalization of ID; prep of voucher specimens; other related activities	9 hours	9
Travel for BMI Rep	\$0.55/mile + \$35/hour (Mapquest)	variable

Total: 24 hours + Travel
24 hours X \$35/hour = \$840 + Travel

For more information, please contact:
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