Constructing a Mesh Bag Collector

Alabama Outdoor Classroom Activity

Grade Levels : 3-12

Overview:
A mesh bag collector can be constructed to help with collecting aquatic invertebrates.

Subject Areas
Biology and Environmental Sciences

Duration
Construction Activity: 30 min.
Monitoring Activity: 45 min per session

Learning Objectives
Students will collect aquatic invertebrates and use them for an aquatic bio-assessment.

Alabama Course of Study Objectives for Science:
Third: 7, 8, & 13
Fourth: 5 & 6
Fifth: 9
Sixth: 7
Seventh: 1, 4, 5, 6, & 7
High School Biology Core: 2, 11, 12, 13, 14, 15, & 16

Materials
- Orange, onion or small mesh clothing bag
- Enough straw, leaves or other suitable organic material with which to fill the bag
- Wire or rope

Outdoor Classroom Connection:
Students evaluate the water quality in a nearby water source through the collecting and classification of aquatic invertebrates.

Background Info

Most aquatic macro-invertebrates (crayfish, larval stages for many aquatic insects, etc.) which are used to evaluate water quality, seek places in which they can hide from predators and yet have easy access to organic material that is decomposing in the water. The mesh bag collector provides aquatic organisms with a suitable habitat and makes collecting them for evaluation easy for the students.

Preparation

Collect the materials listed under the materials list.

Procedure

1. Select a small mesh laundry bag or a mesh onion or orange bag.
2. Fill the bag with deciduous leaves, old wheat straw or hay (old organic leaf material from the bottom of a pond is even better).
3. Tie the bag shut with a cord that is long enough to allow the bag to be placed at the bottom of the pond and with enough left that will allow you to retrieve the bag from the water.
4. Create a depression in the rock bottom (pond with liner) and place the bag in this depression or just place it on the bottom of a soil bottom pond or stream.
5. Give the bag several weeks so the organic material can begin to decompose.
6. Pull the bag out of the water and carefully empty it into some white sorting trays.
7. Carefully pick through the material and watch for moving organisms.
8. Sort them into Bug Types I, II, or III using the Alabama Water Watch sorting key.
9. Use this information to assess the water quality of the water source.

Assessment

Students should be able to identify the collected organisms using the AWW Bugs Sheets as Level I, II, or III BUGS. Once the organisms are identified, the students will use this information to help them classify the water's quality as Excellent, Good, Fair, or Poor. *(AWW refers to the Alabama Water Watch Program.)*

Extensions

► Students will monitor the water quality over a period of time to see if there is any fluctuation in the water's quality during different seasons of the year.

► Students will list variables (temperature, dissolved oxygen, pH) that may affect the water's quality and then monitor them over a period of time to see if they play a role in the types of organisms found in the water.

Literature Connection

Reference Source; **A Guide to Common Freshwater Invertebrates of North America** by J. Reese Foshell, Jr.

The Alabama Outdoor Classroom Program is a partnership between:

Alabama Cooperative Extension System

Alabama Wildlife Federation
www.alabamawildlife.org/classrooms/

Alabama Department of Conservation & Natural Resources