Macroinvertebrate Mix and Match - Bugs Don't Bug Me

Summary

The class will learn about the head, thorax and abdomen of insects by mixing and matching pictures of bugs. They will also match the larva/nymph stage of each species to the adult.

Main Core Tie

Science - Kindergarten
Standard 1 Objective 2

Additional Core Ties

Science - 1st Grade
Standard 1 Objective 2
Science - 1st Grade
Standard 1 Objective 3
Science - 1st Grade
Standard 4 Objective 1
Science - 1st Grade
Standard 4 Objective 2
Science - 2nd Grade
Standard 1 Objective 2
Science - 2nd Grade
Standard 1 Objective 3
Science - 2nd Grade
Standard 4 Objective 1
Science - 2nd Grade
Standard 4 Objective 2
Science - 3rd Grade
Standard 2 Objective 1:
Science - 4th Grade
Standard 5 Objective 2
Science - 5th Grade
Standard 5 Objective 1
Science - 5th Grade
Standard 5 Objective 2
Science - Kindergarten
Standard 1 Objective 3
Science - Kindergarten
Standard 4 Objective 1
Science - Kindergarten
Standard 4 Objective 2

Time Frame

1 class periods of 30 minutes each

Materials

Macroinvertebrate posters (available on loan or for sale through USU Water Quality Extension 435-

797-2580, see Appendix G (pdf) for price list). You can also use your own pictures of macroinvertebrate adults and larvae. Cut the pictures of larvae into three sections (head, thorax and abdomen; use whole pictures of adults).

Background for Teachers

PURPOSE:

To introduce students to aquatic macroinvertebrates (primarily insects) and the major segments (the head, thorax and abdomen) and the differences between larval, nymph and adult stages.

BACKGROUND:

Macroinvertebrates have three body segments--the head, thorax and abdomen. The head contains the head and antennae. The midsection of the body is called the thorax. It bears the jointed legs and wings. The lower section of the body is the abdomen.

All aquatic macroinvertebrates start life as eggs. Some animals, such as water boatmen (Hemiptera) and leeches, do not change much as they grow -- like humans, they get bigger but look basically the same. Some insects, however, change (metamorphose) quite dramatically as they grow. After hatching, the insect may go through several stages before reaching adulthood. Depending on the species, it may go through a larval stage, a nymph stage, or both.

Larva do not show wing buds and usually look quite different than adults.

Black Fly Larvae

Black Fly Adult

Nymphs usually resemble adults, but are smaller and have no wings.

Stonefly Nymph

Stonefly Adult

Instructional Procedures

PROCEDURE:

Ask the students if they know what the words "aquatic macroinvertebrate" mean. Break down the different words… Aquatic = water, Macro = big enough to see with the naked eye, Invertebrate = no backbone.

Ask the students if they can name the three segments of an aquatic macroinvertebrate. You can have a volunteer show where the segments would be on a human.

Show the students pictures of larvae and nymphs you have cut into three segments. Ask them to repeat what the three segments are (head, thorax, and abdomen).

Tell the students the larvae and nymphs in the pictures live in water. Ask them how they can tell the difference between larvae, nymphs, and adults (the adults have wings).

Talk about the differences between larval and nymph stages of macroinvertebrates and adults.

Reaffirm to the students that the pictures on the posters (or the whole pictures) are the adults, and the pictures cut into three segments are the larvae or nymphs.

Explain to the students that they will each receive one segment of a bug. Their first task is to mingle with each other and match their entire macroinvertebrate. The person with the abdomen needs to find a matching head and thorax, etc.

Pass out the pictures which are cut into three pieces. Each student should get one segment, unless there are extra, and then some students will get more than one.

After they have found the entire macroinvertebrate picture, they need to find the poster of the adult it matches.

Once they have matched all the pictures, have them sit down. Review all of the posters to make sure they are correct and discuss the information and facts about each macroinvertebrate in the posters

Extensions

Now that the students know about macroinvertebrates, their adaptations, feeding habits, and body parts; follow with Macroinvertebrate Graphing or Macroinvertebrate Investigation.

Bibliography

This lesson plan was developed by the Utah State University Water Quality Extension.

Authors

Utah LessonPlans