

# Macroinvertebrate Mix and Match

Revised October 2011

**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.

**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.

**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.

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

Black Fly Larvae



Stonefly Nymph



Black Fly Adult



Stonefly Adult



**Suggested grade level:**  
K-6

**Duration:**  
30 minutes

**Setting:**  
Classroom  
Outdoors

**Core Alignments**  
Click the links (or visit [streamsidescience.usu.edu](http://streamsidescience.usu.edu) for grade-by-grade alignments.)

Kindergarten:

Science ILOs

1st Grade:

Science ILOs

2nd Grade:

Science ILOs

3rd Grade:

Science ILOs

4th Grade:

Science ILOs

5th Grade:

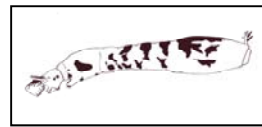
Science ILOs

6th Grade:

Science ILOs



**MATERIALS:** Macroinvertebrate posters (available on loan or for sale through USU Water Quality Extension 435-797-2580). 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).



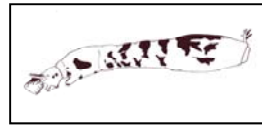
## PROCEDURE:

1. 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.

2. 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.
3. 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).
4. 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*).
5. 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.
6. 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.
7. 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.
8. After they have found the entire macroinvertebrate picture, they need to find the poster of the adult it matches.
9. 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.





**CONTINUED LEARNING:**

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



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