

Macroinvertebrate Mix and Match

GRADE LEVEL:
K-12

SUBJECT AREAS:
Science

DURATION:
15-20 minutes

SETTING:
Classroom
Outdoors

**LINK TO THE UTAH
CORE CURRICULUM:**
Science –

Kindergarten
Standard 2

Second Grade
Standard 1

Fourth Grade
Standard 5

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

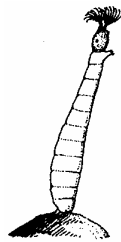
SUMMARY: The class will learn about the head, thorax and abdomen of insects by mixing and matching pictures of bugs. They will also match the larva/nymph stage of each species to the adult.

BACKGROUND: Macroinvertebrates have three body segments, the head, thorax and abdomen. The head contains the head and antennae. The midsection of the body 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 – they only get bigger, like humans. 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.



Blackfly
Larva

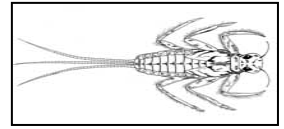
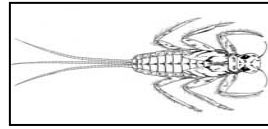
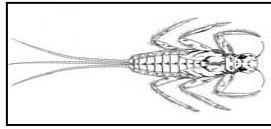
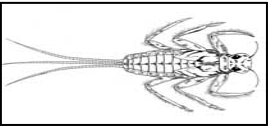


Stonefly
Nymph

MATERIALS: Macroinvertebrate posters (available on loan through USU Water Quality Extension 435-797-2580). Or you can use macroinvertebrate larva or nymph pictures. Cut them into the three sections and use whole pictures of adults.

PROCEDURE:

1. Ask the students if they know what the words “aquatic macroinvertebrate” means. 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 a aquatic macroinvertebrate. You can have a volunteer come up and show where the segments would be on a human.
3. Show the students pictures of larva and nymphs you have cut into three segments. Ask them to repeat what the three segments are (head, thorax or abdomen).
4. Tell the students the larva and nymphs in the pictures live in water. Ask them how they can tell the difference between larva, 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 the pictures on the posters (or the whole pictures) are the adults, and the pictures cut into three segments are the larva or nymphs.
6. Make sure students understand the three segments of the body and the difference between larva, nymph and adult macroinvertebrates. Then pass out the pictures cut into three pieces. Each student should get one segment.
7. Explain to the students their first task is to mingle with each other and match up their entire macroinvertebrate. The person with the abdomen needs to find a matching head and thorax, etc.
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 the posters to make sure they are correct, and discuss the information and facts about each macroinvertebrate in the posters.

EXTENSION: Follow this activity with Macroinvertebrate Simon Says.