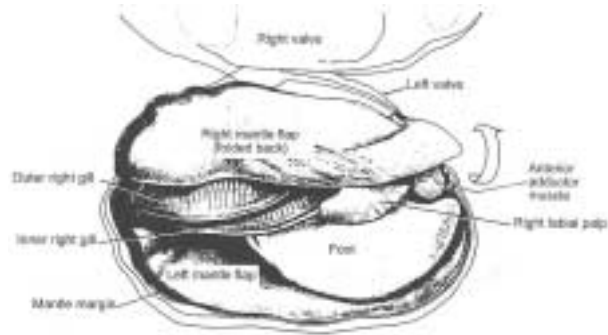


Mussel Anatomy Lesson Plan

Objective:

Students will identify the names and functions of the parts of a mussel, including the shell, mantle, gills, digestive system, circulatory system, nervous system, adductor muscles, siphons, umbo, and foot by examining a mussel and a model or labeled anatomical chart of a mussel. They will explain how the physical adaptations help the mussel survive in its environment.



Grade Levels: 4 – 8

Time Required: one class period (may be used together with mussel life cycle lesson and mussel habitat diorama lesson)

Materials:

One or more freshwater mussels

Mussel anatomy chart (see below)

<http://dnr.state.il.us/lands/education/mussels/anatomy.htm> online version at DNR (Mussel model)

ISM and Other Online Resources:

<http://www.museum.state.il.us/exhibits/harvesting/mussels>

<http://www.museum.state.il.us/ismdepts/zoology/collections>

<http://www.uvm.edu/~pass/tignor/mussels/index.htm> University of Vermont Web module for elementary students on mussels.

http://bioweb.uwlax.edu/zoolab/Table_of_Contents/Lab-5b/Mussel_Mount/mussel-mount.htm

<http://dnr.state.il.us/lands/education/mussels/intro.htm> Department of Natural Resources' education pages for mussels.

<http://www.inhs.uiuc.edu/cbd/musselmanual/cover.html> *Freshwater Mussels of the Midwest* book to order.

<http://www.inhs.uiuc.edu/cbd/musselmanual/TofC.html> online sections of the book above include anatomy, species accounts with photographs.

Motivation:

A freshwater mussel is a soft-bodied animal with a muscular head and foot and a mantle, which usually secretes a protective shell. (Online **glossary** is at <http://www.inhs.uiuc.edu/cbd/musselmanual/glossary.html>.) This animal is important to balanced river ecology. The presence or absence, increase or decrease, in population of mussels in a river can be a telling story about the health of that river.

Procedure:

Look at the Museum's Web site Harvesting the River to introduce the students to the role of the mussel in the ecologic and economic life of Illinois as part of a unit on rivers or ecology. Notice the many kinds of mussels in Illinois waters by looking at the photo gallery of mussel shells.

Prepare and dissect a mussel according to the lesson description presented by the <http://www.irh.k12.nf.ca/mussels/morpholo.htm>. Web site. *Note that this dissection is of a saltwater mussel, not a freshwater mussel.*

Use the DNR mussel anatomy chart to point out which parts of the mussel the students are looking at (as the size and tissues of the mussel are sometimes difficult to see clearly).

Assessment:

Given a list of the parts of a mussel, or a simple diagram (see page 4) of the parts of a mussel, the students will be able to identify and label and define these parts in writing, and explain how the physical adaptations help the mussel survive in its environment.

Illinois State Board of Education Goals Addressed:**Science:**

12.B.2a Describe relationships among various organisms in their environments (e.g., predator/prey, parasite/host, food chains and food webs).

12.B.2b Identify physical features of plants and animals that help them live in different environments (e.g., specialized teeth for eating certain foods, thorns for protection, insulation for cold temperature).

12.B.3a Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid.

12.B.3b Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage, defensive structures).

Label the parts of the mussel. Below the diagram, write the function of each part.

