

Illinois River and Lake Mussel Habitat Diorama Activity:

Objective: students will be able to identify and describe the living and environmental elements of river and lake mussel habitats at the time before settlement and industrialization.

Grade Levels: 2-7

Time Required: teacher-guided tour through the Harvesting the river online exhibit section on mussels and fish species, including the photo gallery; a look at the mussel shell collection online of 81 specimens of Illinois mussels; this is supplemental to classroom instruction and discussion of river and lake habitat.

This could also be a post-visit activity with a field trip to the *Changes* exhibit at the Illinois state Museum in Springfield, where there is a full-scale diorama of a mussel habitat.

Online Resources:

<http://museum.state.il.us/exhibits/harvesting/index.html> (sections on Harvesting, mussels, fish; photo gallery)

Illinois Mussels Collection Online

<http://www.museum.state.il.us/ismdepts/zoology/collections/mussels/index.html> (photo gallery, introductory text on mussels, article on mussels)

Materials:

Computer, Internet connection, printer

Photocopier

Printouts of plant and animal graphics

Coloring media – crayons, pencils, paint **OR** 3-D materials to sculpt plants and animals.

Shoobox or other diorama box or stage

Scissors

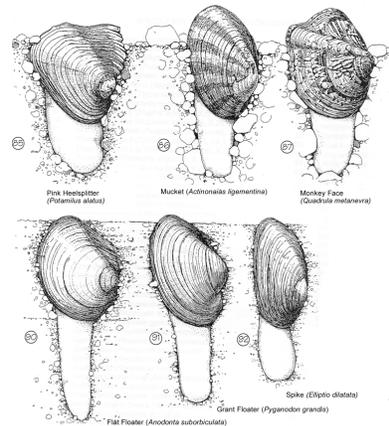
Dirt, sand, gravel

Kraft paper to sculpture landforms

Gluestick and glue

Motivation:

When studying river habitats, it is important to understand the interdependence and interconnections among many types of plants and animals that share an ecosystem. Underwater habitats are difficult to visit in person. The Illinois State Museum's new first-floor exhibit, *Changes*, opening in 2003, offers an opportunity to view such a habitat in the form of a life-size diorama. Students could do this activity as a post-museum-visit lesson to reinforce what they learned. If students are unable to visit the museum, their making this diorama gives them an opportunity to visualize the habitat they are studying.



Also see other ISM lessons on mussel anatomy and life cycle. The diorama could be an individual or group project and vary in size accordingly.

Procedure:

Students will:

- 1) become familiar with the materials in the *Harvesting the River* and *ISM Mussel Collection Online* introductory text and images
- 2) discuss the animals and plants found in the mussel habitat and how they interact and interconnect
- 3) identify and color the plants and animals in the printouts
- 4) construct the environment of their diorama, contouring the land and riverbed or lakebed and adding soil types
- 5) place and glue their plants and animals in the diorama according to the descriptions of each animals habitat (i.e. mussels bury themselves halfway into the mud of the riverbed leaning upstream)
- 6) add any finishing creative touches to their diorama (water effects with plastic wrap, etc)
- 7) review to themselves the characteristics, life cycles, habitat, and interconnections of the living and non-living components of their diorama habitat.

Assessment:

The diorama arrangement should demonstrate an understanding of where (river or lake) each animal and plant lives in relation to others and what each basically looks like (green leaves, brown shell, etc.). For example, mussels should be partially buried in the lakebed or streambed. The student discussion or description should demonstrate knowledge of the characteristics of the living species and their relationship to their environment.

Illinois State Board of Education Goals Addressed:

Science: Concepts and Principles

Early Elementary:

12.A.1a Identify and describe the component parts of living things (e.g., birds have feathers; people have bones, blood, hair, skin) and their major functions.

12.A.1b Categorize living organisms using a variety of observable features (e.g., size, color, shape, backbone).

12.B.1a Describe and compare characteristics of living things in relationship to their environments.

12.B.1b Describe how living things depend on one another for survival.

Late Elementary:

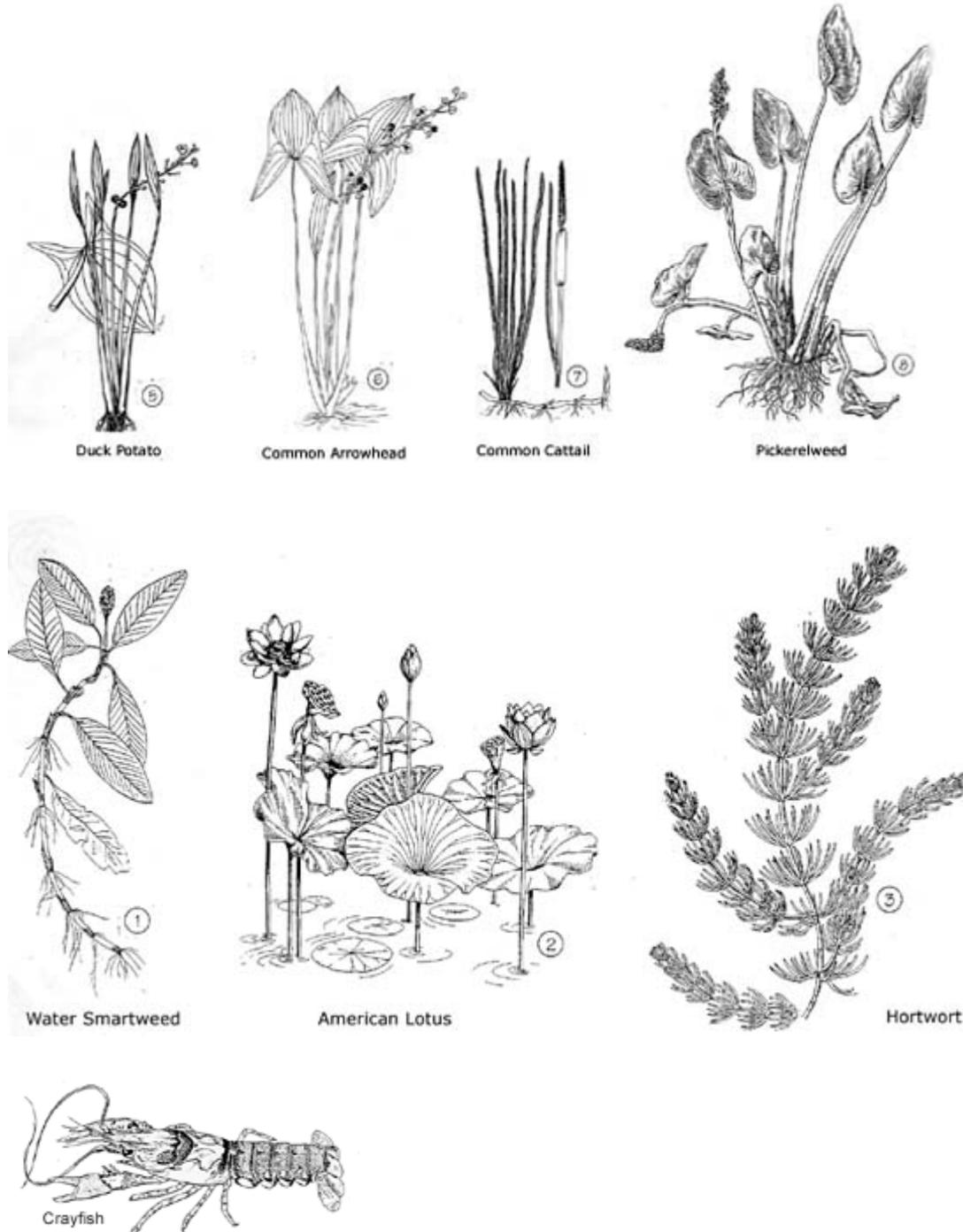
12.A.2a Describe simple life cycles of plants and animals and the similarities and differences in their offspring.

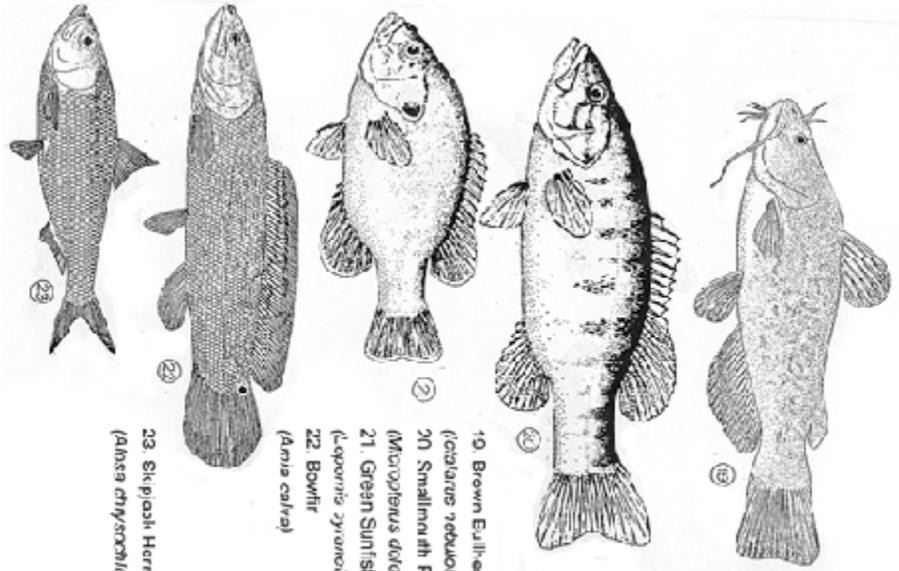
12.B.2a Describe relationships among various organisms in their environments (e.g., predator/prey, parasite/host, food chains and food webs).

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).

Diagrams of Animals and Plants in Mussel Habitats

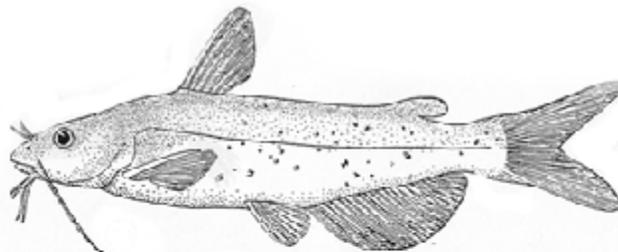
NOTE: these are **not** drawn to scale. Students can view them to redraw them to scale for their diorama or estimate the size according to facts about the plants' or animals' sizes.





18. Skipjack Herring
(*Allosa chrysochloris*)

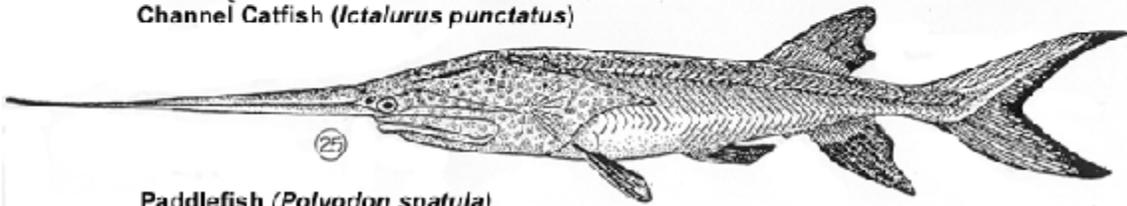
19. Brown Bullhead
(*Ictalurus nebulosus*)
20. Smallmouth Bass
(*Micropterus dolomieu*)
21. Green Sunfish
(*Lepomis cyanochus*)
22. Bowfin
(*Amia calva*)



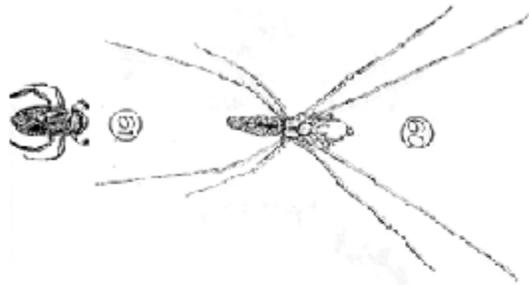
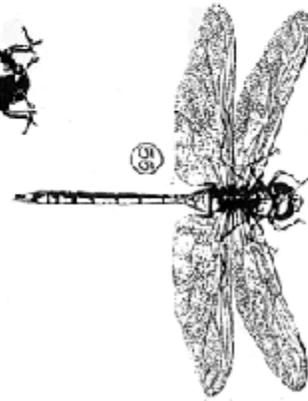
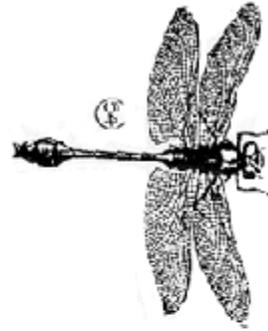
Channel Catfish (*Ictalurus punctatus*)



Emerald Shiner
(*Notropis atherinoides*)



Paddlefish (*Polyodon spatula*)



- 54. Clubtail Dragonfly (*Scaphrus vestus*)
- 55. Green Darter Dragonfly (*Ammix junius*)
- 56. Long-leaved Cribweaver (*Tetranella* sp.)
- 57. Water Boatman (*Arctocoryca interrupta*)
- 58. Water Scavenger Beetle (*Coleoptera*)
- 59. Water Strider (*Serris* sp.)
- 54. Mayfly Nymph (*Heptagenia flavescens*)



- 52. Twelve Spot Skimmer (*Libellula pulchella*)
- 53. Black-winged Damselfly (*Calopteryx maculata*)
- 56. Giant Waterbug (*Beracus griseus*)
- 57. Hellgrammite (*Corydalis Cornuta*)
- 58. Damselfly Nymph (*Odonata zygoptera*)
- 59. Scud Amphipod (*Amphipod* sp.)

41. Northern Water Snake
(*Nerodia sipedon*)
44. Diamondback Water
Snake (*Nerodia rhombifer*)

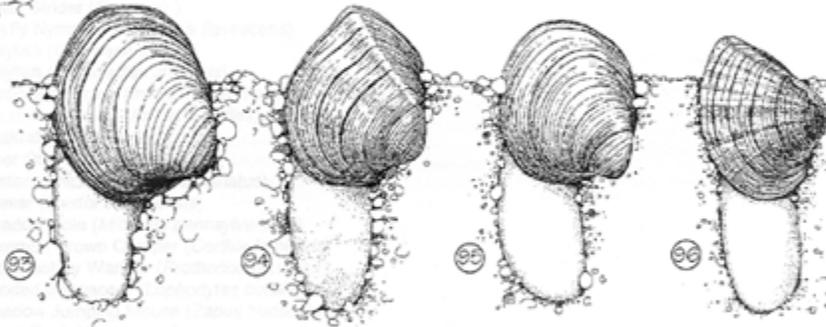
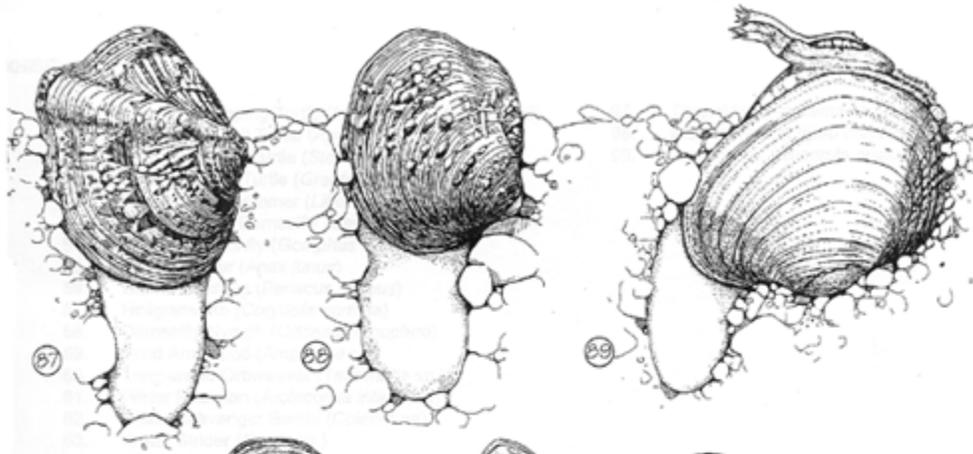


47. Pond Slider
(*Trachemys scripta*)
48. Alligator Snapping
Turtle (*Macrochelys
temminckii*)
51. Common Map Turtle
(*Graptemys geographica*)

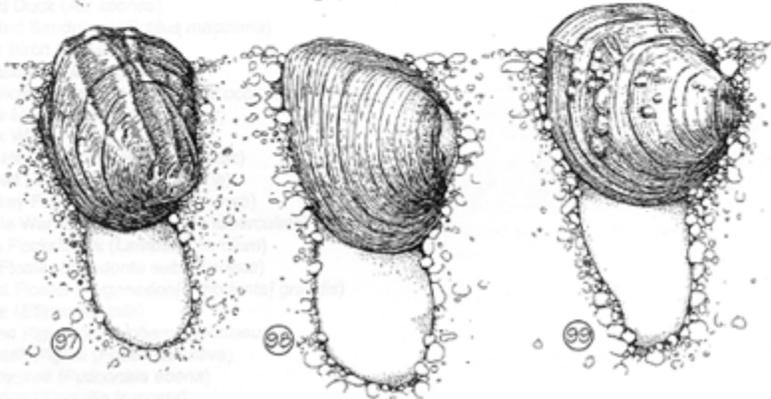


38. Northern Cricket Frog
(*Acris crepitans*)
40. Green Snake
(*Regina septemvittata*)
43. Snapping Turtle
(*Chelydra serpentina*)
46. Painted turtle
(*Chrysemys picta*)
50. Common Musk Turtle
(*Sternotherus odoratus*)



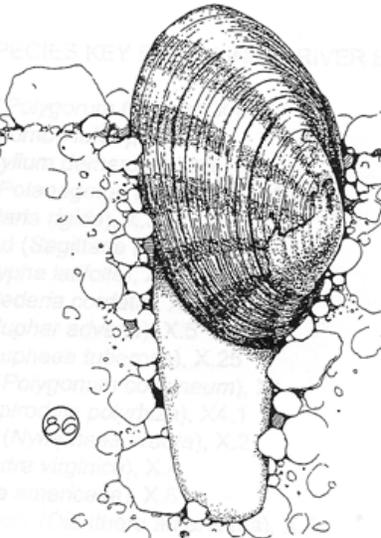


- 87. Monkey Face
(*Quadrula metanerva*)
- 88. Purple Wartyback
(*Cyclonaias tuberculata*)
- 89. Plain Pocketbook
(*Lampsilis cardium*)
- 93. Round Pigtoe
(*Pleurobema coccineum*)
- 94. Wabash Pigtoe
(*Fusconia flava*)
- 95. Ebonyshell
(*Fudconia ebena*)
- 96. Deertoie
(*Truncilla truncata*)
- 97. Threeridge
(*Amblyema plicata*)
- 98. Elephant-ear
(*Elliptio crassidens*)
- 99. Pimpleback
(*Quadrula pustulosa*)

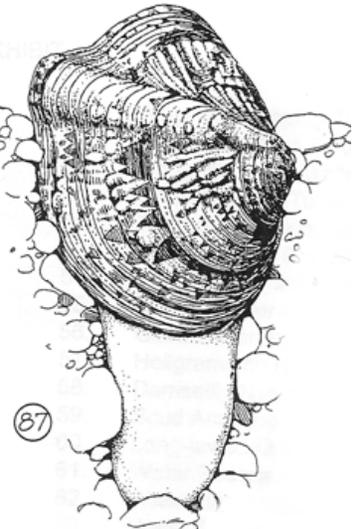




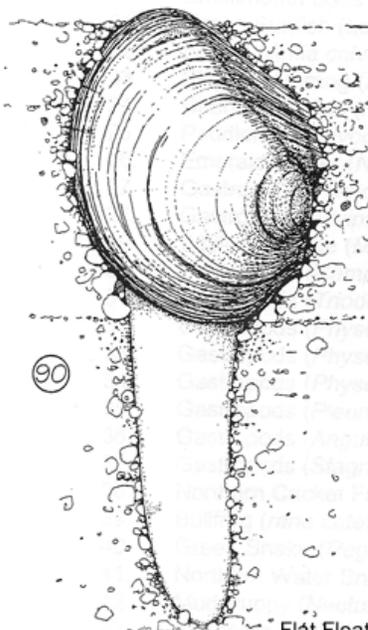
85
Pink Heelsplitter
(*Potamilus alatus*)



86
Mucket (*Actinonaias ligementina*)



87
Monkey Face
(*Quadrula metanevra*)



90
Flat Floater (*Anodonta suborbiculata*)



91
Grant Floater (*Pyganodon grandis*)



92
Spike (*Elliptio dilatata*)

