

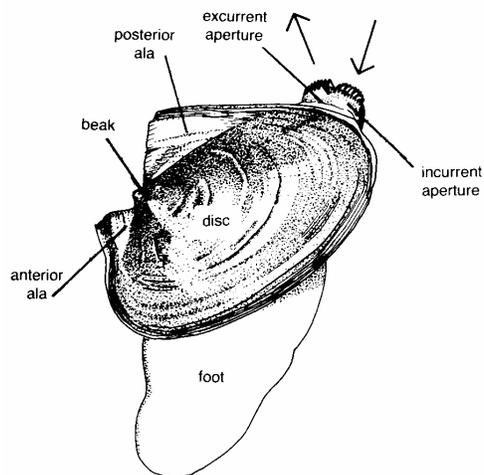
WHAT IS IN A NAME? MUSSEL IDENTIFICATION

OBJECTIVE

Students will use descriptive language to develop names for freshwater mussels.

METHODS

Students are provided freshwater mussel shells (or pictures of freshwater mussels) and instructed to work in teams to develop names that concisely describe the mussels



BACKGROUND

Identifying freshwater mussels may seem intimidating, especially when you are first introduced to them. However, many of the common and scientific names are very descriptive of the mussel shell's exterior shape, color, texture, size or in some cases the type of habitat a mussel is found in. The following two examples illustrate how descriptive language has been used to name mussels: the threeridge has three ridges on its shell and the group of mussels called heelsplitters have a sharp wing, or **posterior ala**, that quite literally could cut someone's heel if stepped on.

<p>Grade Level: K - 12</p> <p>Subjects: Social Studies, History, Language Arts</p> <p>Duration: 30 to 45 minutes</p> <p>Group Size: Any</p> <p>Setting: Classroom</p> <p>Key Vocabulary: mussel, shell</p> <p>Materials:</p> <ul style="list-style-type: none">• mussel shells• mussel identification book or access to internet
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Some common names of mussels are based on the similarity of the mussel's shape to an item that was used in the 1800's. For example, the pocketbook was given its name because it looks like a small purse, also called a pocketbook, carried by women of that era. Other mussels named after items commonly used in the 1800's include: washboard, snuffbox, spike (after a railroad spike), and spectacle case. The common names of other mussels are based on the resemblance they have to plants, animals, or parts of animals: pigtoe, monkeyface, fawnsfoot, deertoe, butterfly, and mapleleaf. However, the same mussel may have several different common names, which is why biologists often refer to mussels, and other plants and animals, by their scientific, or Latin, name, thereby eliminating any confusion.

MATERIALS

- Freshwater mussel shells or pictures of freshwater mussels. (See "Making a Freshwater Mussel Collection" at the end of this activity and the list of Wisconsin's threatened and endangered mussels in the appendix to avoid collecting protected species)
- Water (optional)

PROCEDURE

1. Place students into groups of 2-4.
2. Choose one shell to demonstrate to the students how they should use descriptive language to develop a name for the mussel.
3. Have the groups develop a descriptive name for each mussel. Water can be used to wet the surface of the mussel shell to make coloration and features more obvious
4. Hand out mussel identification books or keys to the groups and have them look up the mussels in the book or key to compare the names given in the book to the names they developed.

ASSESSMENT

Have students make a Beany Baby™ mussel by using cloth and fabric paint then sewing the pieces together. Place beans inside and finish sewing shut. Accompany each Beany Baby™ mussel with a placard listing the mussel's name, reason for name (if known), identifying characteristics and artist's name.

EXTENSIONS

1. Take a field trip to a local stream before the activity to collect freshwater mussels. See "Making a Freshwater Mussel Collection" below. Consult the list of Threatened and Endangered species since it is illegal for a person to possess a Threatened or Endangered species without proper state and federal permits.
2. Have students interpret the scientific, or Latin, names of the mussels and compare them to the descriptive names they developed for the mussels.

FIELD GUIDES AVAILABLE FOR IDENTIFICATION OF FRESHWATER MUSSELS

Cummings, Kevin S., and Christine A. Mayer. 1992. Field Guide to Freshwater Mussels of the Midwest. Champaign, IL: Illinois Natural History Survey. (Manual 5). This book is also available electronically at:

http://www.inhs.uiuc.edu/chf/pub/mussel_man/cover.html

Oesch, Ronald D. 1984. Missouri Naiades: A guide to the Mussels of Missouri. Jefferson City, MO: Missouri Department of Conservation.

A bibliography of other mussel field guides can be found on the internet at:

http://fly.hiwaay.net/~dwills/bks_id.html

MAKING A FRESHWATER MUSSEL COLLECTION

The following excerpt on how to make a mussel collection is from, Field Guide to Freshwater Mussels of the Midwest, by Kevin S. Cummings and Christine A. Mayer, Illinois Natural History Survey, Manual 5, Champaign, Illinois, December 1992.

"Before collecting mussels it is advisable to contact the Department of Conservation or the Department of Natural Resources to find out whether there are any restrictions and to obtain any permits that may be required. Because of the rarity of many of the native species, live mussels should never be collected without prior permission. One can still build a nice collection by taking only shells and returning all live mussels to the stream or lake.

Perhaps the best place to begin looking for shells is along the bank of a medium-sized or large river when the water is at its lowest level (usually July to September). Although a few species can withstand some dessication, most are found in permanently flowing streams or lakes that contain water year-round.

Mussels can be found in a variety of habitats but are most abundant on shoals, where they live in gravel or a mixture of sand, mud, and gravel. A wide variety of shells can often be found along the shore in piles or "middens" left by muskrats or raccoons. The simplest and possibly the most effective method of collecting mussels is by hand-picking along the shore or in the stream. A small net bag or old potato sack makes a good container for holding shells in the field.

For your specimens to have scientific as well as aesthetic value, you need to keep accurate labels and records of field observations. After specimens are collected, a label should be made immediately and placed in the bag with the specimens; it should include the following information: the name of the body of water, road or bridge crossing, distance and direction from the nearest town, the county and state, the date, and the name of the collectors. Other information, such as water temperature, depth, current velocity, bottom type, and time spent collecting, can be recorded in a field notebook. Locality data should be written in pencil or india ink on a good grade of label paper so the label will not mold or disintegrate in the bag. Specimens without sufficient locality data are essentially worthless, so it is extremely important to accurately label specimens...

Once collected, the shells should be cleaned with warm water and a brush or teflon scrub pad to bring out the true colors and other markings needed for identification. After cleaning, locality data or a numbering system used to tie that specimen to a particular locality should be written directly in the shell with a pencil or india ink. If, after cleaning, you still have trouble identifying your specimen, you can often send it to a specialist for verification. Prior arrangements should be made with the curator of a museum before sending specimens for identification..."

THREATENED AND ENDANGERED MUSSELS OF THE UPPER MISSISSIPPI RIVER

The table below is for informational purposes. Listings of species may change, therefore, before collecting any shells, please check with your state natural resource agency.

The following mussels are protected and are illegal to have in your possession.

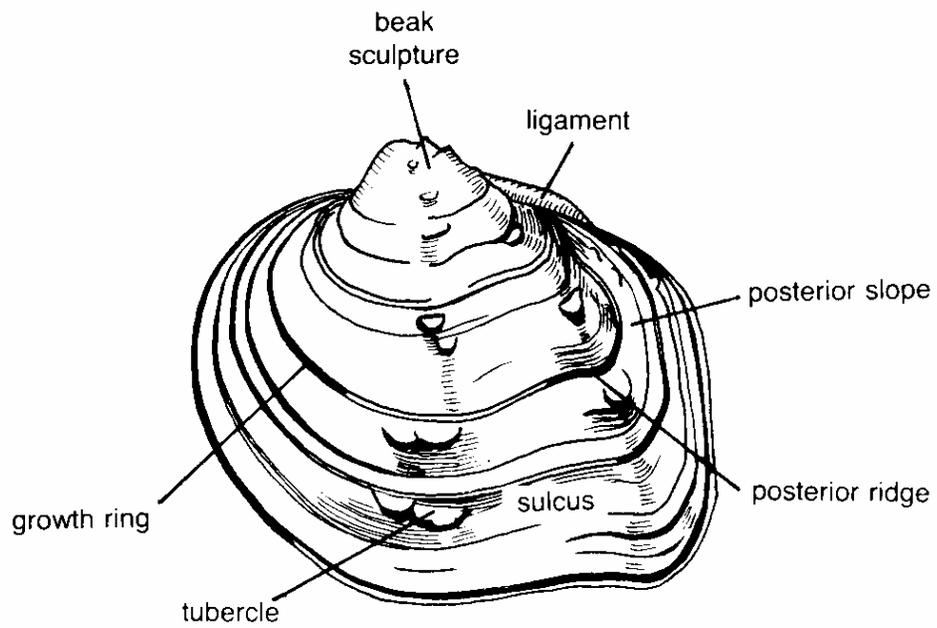
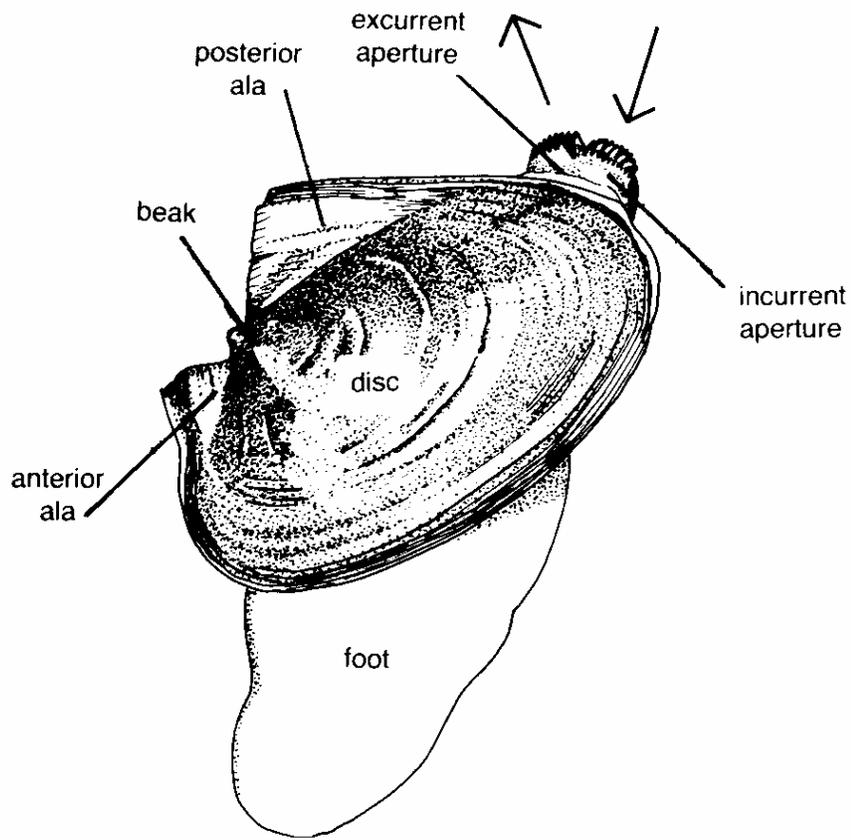
Common Name	Scientific Name	July 1999 State and Federal Status					
		WI	MN	IA	IL	MO	FED
Mucket	<i>Actinonaias ligamentina</i>		T				
Elktoe	<i>Alasmidonta marginata</i>		T				
Slippershell	<i>Alasmidonta viridis</i>	T		ET			
Cylinder	<i>Anodontooides ferussacianus</i>			ET			
Rock Pocketbook	<i>Arcidens confragosus</i>	T	E				
Spectacle Case	<i>Cumberlandia monodonta</i>	E	T	ET			
Purple Wartback (Purple Pimpleback)	<i>Cyclonaias tuberculata</i>	E	T	ET			
Fanshell	<i>Cyprogenia stegaria</i>				E		E
Butterfly	<i>Ellipsaria lineolata</i>	E	T		ET		
Elephant Ear	<i>Elliptio crassidens crassidens</i>	EX	E			E	
Spike	<i>Elliptio dilatata</i>				ET		
Curtis Pearlymussel	<i>Epioblasma florentina curtisii</i>					E	E
Snuffbox	<i>Epioblasma triquetra</i>	E	T		ET		
Ebony Shell	<i>Fusconaia ebena</i>	EX	E	ET		E	
Pink Mucket	<i>Lampsilis abrupta</i>					E	
Wavy-rayed Lampmussel	<i>Lampsilis fasciola</i>				E		
Higgins' Eye	<i>Lampsilis higginsi</i>	E	E			E	E
Yellow Sandshell	<i>Lampsilis teres anodontooides</i>	E	E				
Slough Sandshell	<i>Lampsilis teres teres</i>	E					
Creek Heelsplitter	<i>Lasmigona compressa</i>			ET			
Washboard	<i>Megalonaias nervosa</i>		T				
Bullhead (Sheepnose)	<i>Plethobasus cyphus</i>	E	E		ET	E	
Clubshell	<i>Pleurobema clava</i>				E		E
Round Pigtoe (Curtis Pigtoe)	<i>Pleurobema coccineum</i>		T	ET			
Fat Pocketbook	<i>Potamilus capax</i>					E	E
Kidneyshell	<i>Ptychobranhus fasciolaris</i>				E		
Rabbitsfoot	<i>Quadrula cylindrica</i>				E		
Winged Mapleleaf	<i>Quadrula fragosa</i>	E	E			E	E
Monkeyface	<i>Quadrula metanevra</i>	T	T				
Wartyback	<i>Quadrula nodulata</i>	T	E				
Salamander Mussel	<i>Simpsonaias ambigua</i>	T	T				
Strange Floater	<i>Strophitus undulatus</i>			ET			
Buckhorn (Pistolgrip)	<i>Tritogonia verrucosa</i>	T	T	ET			
Ellipse	<i>Venustaconcha ellipsiformis ellipsiformis</i>	T	T	ET			
Rainbow Shell	<i>Villosa iris</i>	E			ET		

E = Endangered

T = Threatened

EX = Extirpated from that state

ET = Reference did not differentiate between endangered or threatened



External Anatomy of a Freshwater Mussel