

ACTIVITY THREE

DON'T HAVE A CLUE

TIME: (1) 45-minute lesson

SCIENCE PROCESS SKILL: Inferring -

SCIENCE CONCEPT: Zebra mussels have an impact on the environment.

BENCHMARKS:

Students should:

Know that, in making decisions, it helps to take time to consider the benefits and drawbacks of alternatives.

Understand that, for any particular environment, some plants and animals survive well, some survive less well, and some cannot survive at all.

Know that organisms interact with one another in various ways in addition to providing food.

OBJECTIVE: Students will make inferences based on facts about zebra mussels.

WHAT YOU OUGHT TO KNOW



Zebra mussels may have negative impacts that upset the ecological balance of the Great Lakes and inland waterways. The sport fisheries in the Great Lakes are changing because of improved water clarity. The zebra mussel's amazing water filtering capacity is partly responsible for improved water clarity; but other factors such as tougher pollution laws and better technology are helping to keep the water clean. Research is being conducted to examine effects of the zebra mussel invasion on native mussel populations.

Although this activity's story, "What Happened to Lake Michigan," is fictional, the facts and basic story line are scientifically based. This is an interactive lesson where students must work together to understand the problem. The fact cards provide information and background knowledge. **NO** single fact card is sufficient to answer the questions.



(11)

WHAT'S THE CONNECTION??

(11)

TO LANGUAGE:

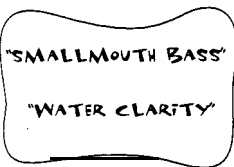
Students will write their own clue game and play the new game with each other.

TO ART

Students can use the story to create and illustrate a comic book.

TO MUSIC:

Write a rap using alliteration.



WORDS OF WISDOM

Aquatic vegetation, smallmouth bass, water clarity
(see also glossary on page 7)

RESOURCES AT THE READY

FOR EACH GROUP -

Two copies of the story 3.1, "What Happened to Lake Michigan," and accompanying questions

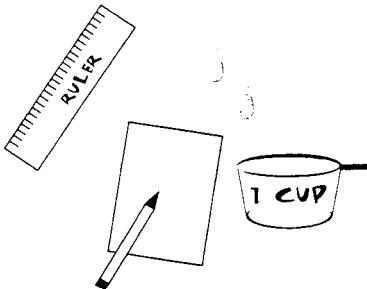
Fact card sheet master 3.2

Observation Sheet 3.3

Laminated fact cards

Paper and pencil

Zebra mussel journals



GETTING YOUR ACT TOGETHER



Hand out the zebra mussel journals so that students can refer to their previously gathered information. Provide 8 fact cards for each working group. Provide other zebra mussel literature as needed by the group.



TIME TO EXPERIENCE ZEBRA MUSSEL MANIA!!

1. Divide students into cooperative learning groups. Each group will carry out the entire activity.
2. Give each group a package of materials that includes two copies of Story 3.1, "What Happened to Lake Michigan," and the related questions.
3. Distribute 2-3 fact cards per group member in every group, and request that they do not read them yet.
4. Teacher will read the story, "What Happened to Lake Michigan." At the end of the story, students in each group will take turns reading the questions.
5. Students are to silently read their fact cards and, when needed, share the information on the fact cards with their group members.
6. Record the answers to the questions on Observation Sheet 3.3 using all available information. Any answer that can be substantiated with the facts and other outside knowledge should be accepted.
7. When the groups are finished, conduct a class discussion on each question and allow each group to contribute its collective answers. Come to a class consensus when determining answers to each question.
8. Have each child record the answers to each question (reached by class consensus) in his/her journal. This information will be useful in later activities.

WHAT DID YOU LEARN??

Each group should present its answers in a class discussion of the questions. The answers should indicate that students have gained experience in finding and summarizing the information requested. Were proper inferences made?

WAIT, THERE'S MORE. . .

- Can the students adapt/modify the game by creating more information (fact) cards?
- Can they rewrite or change the story and make fact cards more locally based?
- Suggest that the modified game be used next year, or have the students teach their adaptation to another class.

"DON'T HAVE A CLUE" GAME

DIRECTIONS FOR STUDENTS

1. Each person in the group will receive several (two or more) fact cards concerning the story.
2. Listen to the story of Lake Michigan as it is read.
3. Using the facts, help your group answer the questions that follow the story. The group can take any approach to solving the problem. However, do not pass the fact cards to anyone (not even in your group) until the activity has ended. One student will read a question then refer to his/her fact cards for an answer. If that student does not have the answer, another student with the correct fact card gives the answer. The next student reads the second question, and so on until all the questions are answered.

Don't Have a Clue Story 3.1

Read by Teacher

WHAT HAPPENED TO LAKE MICHIGAN?

Melanie had grown up near Chicago, and she had spent most of her summers sailing, swimming, and fishing in Lake Michigan. Melanie moved away from Chicago in 1980. In 1993, she and her husband, Mike, moved back to her home town, where they moved into a condominium high above Lake Michigan's impressive shoreline. Melanie noticed that the water in the harbor was much clearer than when she was a child. She was surprised to see a lot of plant life in the water that she had never observed before.

One day while they were sailing, Melanie told Mike that, when she was in high school, she remembered boats coming in and out of the harbor filled with walleye and smallmouth bass. As Melanie was remembering the good old days with Mike, they passed her family's favorite vacation spot, a secluded beach where they camped every summer, and they noticed a nasty odor. Melanie and Mike also noticed that the only boats they saw on the lake were sailboats and yachts -- no fishing boats.

On their return trip home they stopped at Fred's Fresh Fish Shop to purchase, what else, fresh fish. Melanie was disappointed to learn from Fred, a local fisherman, that he didn't have any walleye left.

He informed her that the local fishing industry has gone through many changes. At this time, the only fresh fish he had was fish shipped in from elsewhere.

