

Zoo Project



**Brennan Middle School
Attleboro, Massachusetts**

Subject Area
Interdisciplinary

Area of Service
Educational

Grade Level
Middle School (Grades 5-8)

Author of Project
Jean Doyle & Lori Ross

Collaborators
Beth Handrigan,
Carleton Legg, Lynne Reale,
Jean Nakowitz, Anjan Nath,
Roberta Perlman, Susan Davis,
Dianne Valade, Kathy Barrette

In Brief

In Project CHOICE (Children Harvesting Opportunities in Community Education), a community service-learning program at Brennan Middle School in Attleboro, fifth graders were absorbed in learning all kinds of facts about endangered species and the role of the zoo in their community. The Zoo Project, as it became known, provided a real-world learning opportunity that focused their awareness beyond the walls of the classroom and enabled the students to actively contribute to their community. This community service learning project transformed their zoo into a "learning lab," promoted educational partnerships among several city agencies, and ultimately contributed to the reaccreditation of the Capron Park Zoo.

Learner Outcomes

Students learn to:

- Examine the role of citizens in a community to protect and conserve wild life;
- Gather information and data to support solutions;
- Reflect on the role of the local zoo as "an educational tool";
- Access, evaluate and integrate information from a variety of sources; and
- Apply communication skills to gather, process, and deliver information on a specific topic.

MASSACHUSETTS CURRICULUM FRAMEWORK CONNECTIONS	
	This unit is aligned with the Massachusetts Curriculum Frameworks. Listed are the subject areas and the learning strands addressed:
	English/Language Arts
	Language Strand: 1, 3, 5
	Literature: 8, 9
	Composition strand: 20, 21, 22, 23, 25
	Mathematics
	Patterns and Functions
	Statistics and Probability
	Science and Technology
	Inquiry
	Life Sciences
	Research, Evidence, and Point of View
History and Social Science	
Geography Strand: 10	

OVERVIEW

The Need

Through a student survey, Brennan Middle School's educators discovered a strong student interest in learning about animals and endangered species. At the same time, the Capron Park Zoo Education Department wanted to recruit community participation in its drive for federal accreditation. And so, based on the mutual needs and the close proximity of two different community institutions, the partnership was born. During the initial planning stages of Project CHOICE, the team considered a number of possibilities before reaching consensus on what topics the students would investigate, where the students' lessons would take place, and who would teach specific lessons. Initially, the teachers envisioned the project idea as an interdisciplinary learner's web or map.

A CSL Response

In subsequent planning sessions, the personnel at the zoo suggested revising the content of the interdisciplinary map to include topics such as animal acquisition, exhibit design, and the social issues surrounding endangered species. With the inclusion of these topics, the partnership deepened. Zoo personnel agreed to provide content workshops for the teachers and student instruction both at the zoo and at the school.

Building on the enthusiasm of both park and school professionals to transform the Capron Park Zoo into a "learning lab" for 170 fifth grade students, other community agencies were recruited to assist the students in the project. The local newspaper's editor taught the students how to write an editorial; the local cable company taped students interviewing Capron Park Zoo's personnel; and the local radio station assisted students in creating an ad and then broadcasted radio advertisements for the zoo.

We would like these kids to come away with the knowledge that zoos aren't just a showplace for exotic animals. We are teaching children that zoos are also involved in education, conservation and research.

Lori Ross, Education Curator



Service Component

By spring the students organized and implemented a citywide accreditation awareness campaign culminating in "Zoo Day," a Public Awareness Fair held at Capron Park Zoo. During the fair students shared their projects with more than 1200 visitors. Students had the opportunity to share the knowledge they had gained from the "experts" at Capron Park Zoo. With several learning stations scattered across the grounds of the park, visitors were reading children books on endangered species, matching animals with their habitats, and listening to students explain the process involved from acquiring animals at a zoo to designing an exhibit for a newcomer.

Celebration

At the completion of year one, each child received a certificate of participation in Project CHOICE at a picnic held at Capron Park Zoo. During this celebration the teachers acknowledged the students' efforts, sharing with them the comments visitors had written about them on Zoo Day. The student body, 170 fifth graders, also evaluated their year-long efforts. Students recognized that they not only made a contribution to their city with the accreditation kickoff held at the park, but they enjoyed learning and connecting with the "people" of their city. Students developed an ownership and investment in the future of their city's zoo.

Capron Park Zoo Accreditation 1996

Community Service Learning Project

Get a Behind the Scenes View of Life in the Zoo !!!

ZOO DAY 1995
May 19th & 20th
10:00 A.M. - 4:00 P.M.

ever wonder...

- What reindeer eat for lunch?
- Where you can get a spider monkey?
- What time bison go to bed?
- How to clean a sloth bear's teeth?
- What's a zookeeper's weekly grocery bill?

the answers to these questions and more at ZOO DAY 1995

Exhibits Tours
Games Contests

for the whole family

information, call the
Park Zoo Education

Accreditation means keeping Capron Park Zoo as

- A vibrant community resource
- Center for life-long learning
- A place for our children to see exotic animals
- Saving endangered species
- Increase in tourism stimulating the economy
- Greater access to grants

OUTCOMES

Student Empowerment: Creating the Project Framework

Project Choice began with a large group introduction to three key figures in the city: the Conservation Officer, the Assistant Superintendent of Parks, and the Education Director at Capron Park Zoo. Following a large group presentation describing community service-learning, the group divided into three subgroups, one per speaker. Topics covered by the individual speaker's presentations included habitats, social issues, animal acquisition, and exhibit design. Each subgroup designed a project that highlighted their speaker's presentation and shared it with the large group.

Students were asked to formulate a "Big Question" that would provide opportunities for them to research and find answers to issues related to wildlife and the environment in their city. Key words cited in the student responses were environment, protecting animals, and responsibility of citizens to help solve city problems. After further discussions the students defined the essential question: "What is our responsibility to protect and preserve wild animals and the environments needed for their survival?"

Having established the essential question, the students brainstormed a list of possible resources needed to answer the question. Of these, students were asked to choose six topics to study. The essential question and the six topics were presented to the students in the form of a learner web model. (See p. 7) Next to each topic in the web, a community agency was listed with a suggested project for the group to demonstrate its understanding of that particular topic.

Each classroom teacher chose a topic from the web and created a corresponding unit of study to implement in the classroom. In addition, each unit had a monthly guest speaker and a field trip. Students began their research with the unit designed by their classroom teacher. The units then rotated according to a predetermined schedule, clockwise throughout the web. Every child in the fifth grade completed all six units of study and participated in the culminating Zoo Day Public Awareness Fair in May. At Zoo Day the students set up their displays, which corresponded to each topic in the web. During the course of Zoo Day, students shared their projects with over 1200 visitors. Among the visitors were "expert panelists" evaluating student's performance and behavior using a rubric. In addition, each visitor was given an evaluation sheet rating the student's knowledge and behavior.

Academic Gains

Interviewing, researching, writing, creating graphics and organizing a city-wide event to inform local citizens of Capron Park Zoo's need for accreditation involved a multitude of learning standards from each of the major academic areas: math, science, English, and social sciences. Students utilized their research skills to investigate social injustices while they read about endangered species. Students demonstrated the knowledge gained from their study of the natural habitats of animals in the zoo's collection by designing models of animal exhibits. Their speaking and listening skills sharpened when the students interacted with local radio, newspaper, and art museum personnel during the fieldtrips and classroom activities. Students used their technology skills by producing quality projects such as brochures and videos to inform the community of the status of Capron Park Zoo.

Community service-learning projects spark students' interest in learning as they problem solve real world issues with adult leaders in the community.

Jean Doyle,
Zoo Project Coordinator

OUTCOMES continued

Project CHOICE had many impacts on students. They were more aware of information, were excited about using guides for research, and interested in exploring the Zoo to complete specific tasks.

Carlton Legg,
Fifth Grade Teacher

Societal Gain

Residents are now very aware of the importance of accreditation for Capron Park Zoo. Though the zoo is not yet accredited, city officials now have the necessary background knowledge. This knowledge and understanding will be essential when the Superintendent of the Parks and Recreation Department requests the financial support necessary for improvements to meet the zoological society's standards. Accreditation by the American Zoo Association not only has a positive impact on the care of the animals currently in the zoo's collection, but it also means access to additional animals. Increasing both the diversity in Capron Park Zoo's collection of animals and the opportunity to receive grants for improvements will contribute to improving the quality of the programs sponsored by Capron Park Zoo and thus directly benefit the members of the community.

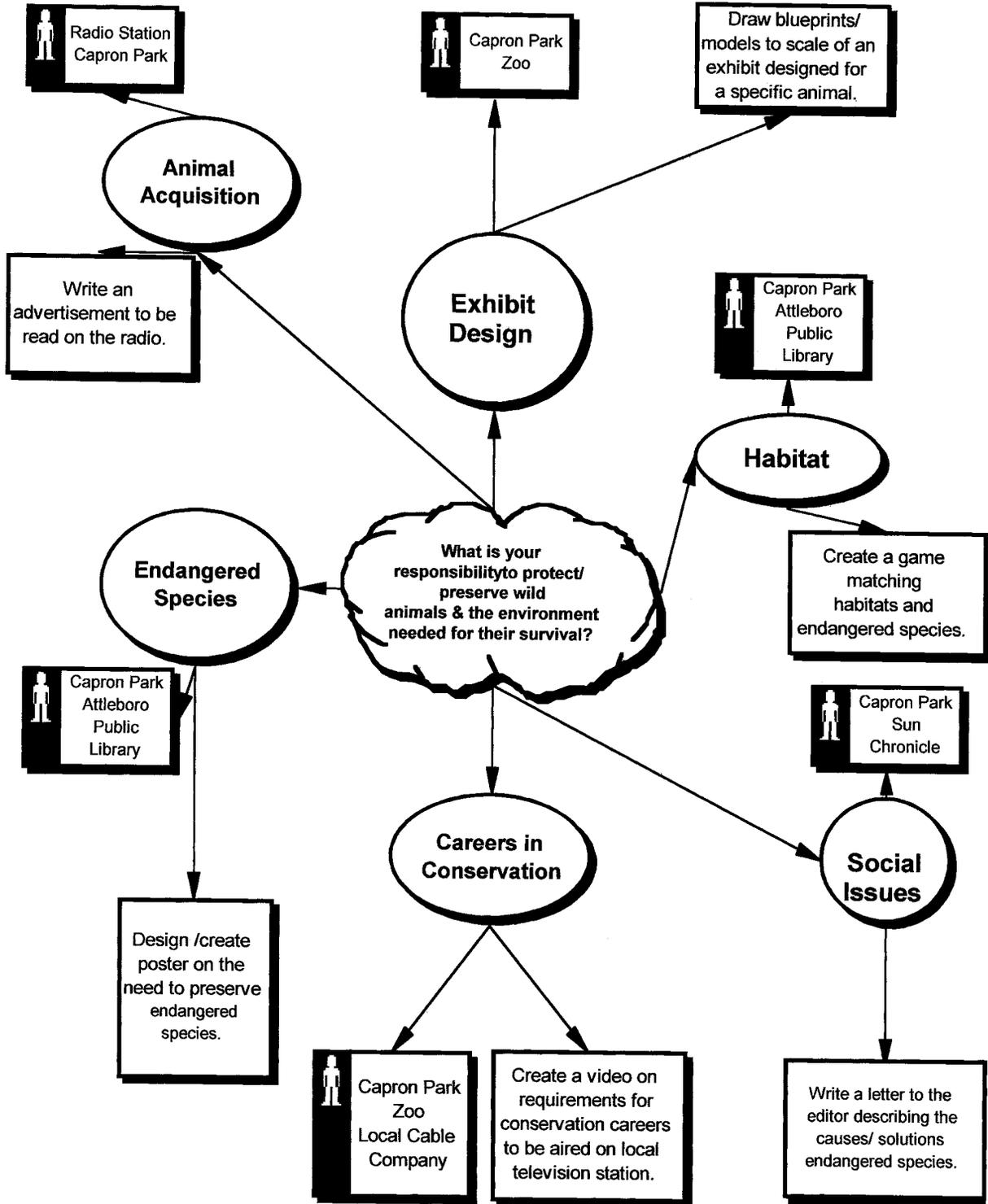
Community Partners

Clear lines of communication are essential in developing this partnership, especially a first time partnership. The Zoo Project involved one main partner, Capron Park Zoo. In addition, the following agencies assisted students in this service-learning initiative:

Attleboro Art Museum
Sun Chronicle (newspaper)
WARA (radio station)
Inland Cable Co.
Attleboro Public Library

Capron Park Zoo's staff continues to work closely with several teachers who were involved in the first year of the project. One class helped the zoo staff plant over 500 flower bulbs in the park. The park staff then helped these students beautify the grounds around their school. Students in another class wrote children's stories that featured animals in the zoo's collection. These stories were used in the zoo's weekly story hour for preschoolers. Zoo staff worked directly with the students by providing reference materials and information about animals, and by helping them edit their work for content. In addition, several teachers who were not involved in Project Choice have asked the park and zoo for assistance in developing their own community service learning projects.

The Learner Web



LESSON PLAN Exhibit Design #1

Objective

Having traced the history of zoo exhibits from the 1700's to present day, the student will create a photographic essay to explain how historical events changed society's view of the role of zoos in the United States, and impacted the design of exhibits.

Learning Standards

History and Social Sciences

Acquire the ability to frame questions that can be answered by historical study and research.

Collect, evaluate, and employ information from primary and secondary sources, and apply it in oral and written presentations.

Geography

Describe ways in which human activity has changed the world, such as transplanting animal and plant species.

English/ Language Arts

Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions and interviews in order to acquire new knowledge.

Materials

Rubric for Assessment

Resources on zoos

Poster board / markers. Large easel paper

Procedure

Part I

Explain how science, technology, and institutions of many kinds have affected human capacity to alter the environment.

Trace the history of exhibit designs in zoos from the 1700's to present day.

Working in cooperative groups, the students reviewed available resources to gather information on three main questions: When, how, and why animals were first exhibited. Students list all works used to obtain their answer.

The recorders of each group shared their findings with the rest of the class. Answers were recorded on large easel paper for the class to view.

Post the question, "How did human needs and beliefs towards animals affect the exhibit designs of zoos throughout time?"

Record human responses on easel sheet divided into three sections:

Needs of humans / Type of Exhibit Design / Time Period

LESSON PLAN continued

Part II

Create a photographic essay comparing and contrasting the exhibit designs of zoos.

View photographs of zoo exhibits throughout history and respond to the questions below:

- Is there evidence of natural habitat?
- Does it appear large enough?
- Is it pleasing to the eye? Why? Why not?
- How could this exhibit be improved?

Create a timeline of photographs of animal exhibits. Write the answers to the questions above in a paragraph describing each exhibit. Visit Capron Park Zoo. View different exhibits with the Education Coordinator and answer the same questions as above. Did the exhibit designs improve? Why? What organizations and laws exist to help protect wildlife? When were they created? Why?

Compile your photographs and descriptive paragraphs regarding the photograph on a poster board, entitled, "The History of Zoos in the United States or Has Man's View of Wild Life Changed?"

Assessment

See rubric below.

Assessment: Rubric for Photographic Essay

Students' work samples were assessed using the Photographic Essay Rubric

4 - WOW

- At least 10 photographs of exhibits in zoos on poster board
- Photographs reflect the time period from the 1700's to present.
- Write a five sentence descriptive paragraph with a topic sentence transition words and a conclusion
- The visual presentation of the poster board:
 - Neat printing
 - Colorful

3 - GOT IT

- At least 8 photographs of exhibits in zoos on poster board
- Photographs reflect the time period from the 1900's to present.
- Write a five sentence descriptive paragraph with a topic sentence and a conclusion
- The visual presentation of the poster board:
 - Neat printing
 - Colorful

2 - NOT YET

- At least 5 photographs of exhibits in zoos on poster board
- Photographs reflect the time period from the 1960 to present.
- Write a five sentence descriptive paragraph with a topic sentence.
- The visual presentation of the poster board:
 - Neat printing
 - Colorful

1 - JUST GETTING THERE

- At least 5 photographs of exhibits in zoos on poster board
- Photographs reflect only a short span of time.
- Write a five sentence descriptive paragraph with a topic sentence.
- The visual presentation of the poster board:
 - Printing needs improvement

LESSON PLAN Exhibit Design #2

Objective

Using results of their own research and information provided by the zoo staff, students will identify an animal that is appropriate for a particular habitat.

Learning Standards

Science and Technology

Note and describe relevant details, patterns, relationships.

Differentiate between questions that can be answered through direct investigation and those that cannot.

Technology

Explore and illustrate possible solutions and from these propose one solution.

Evaluate designs and develop measures of quality.

Mathematics

Collect, organize, and describe data systematically.

Make inferences and convincing arguments that are based on data analysis.

Materials

Tape measures

Clue sheet

Exhibit design

Field guides and animal reference materials.

Procedure

Working in small groups the students explore the site of the proposed mystery animal exhibit, making note of special features of the site and measurements of the area. Students visit the off-exhibit holding area.

Using the clue sheet, information gathered at the site, and the research materials provided, students work in small groups to formulate their conclusions on the identity of the mystery animal.

Each group shares conclusions and the evidence that supports the group's conclusions.

Assessment

Students list the name of the mystery animal and the supporting evidence they collected.

TIES TO THE MASSACHUSETTS CURRICULUM FRAMEWORKS

LEARNING STANDARDS/ OUTCOMES	ACTIVITY	ASSESSMENT
<p>History</p> <p>Research/Evidence/Point of View Students will acquire the ability to: Frame questions that can be answered by historical study and research. Collect, evaluate and employ information from primary and secondary sources. Apply it in oral and written presentations.</p>	<p>Working in cooperative groups, the students reviewed available resources to gather information answering three main questions: when, how, and why were animals first exhibited. Students listed works they used to obtain answers.</p>	<p>Each group submitted notes containing information citing its sources on all three questions.</p>
<p>Geography</p> <p>Standard 10: Students will describe ways in which human activity has changed the world such as transplanting animal and plant species. They will explain how science, technology, and institutions of many kinds have affected human capacity to alter environments.</p>	<p>Students created a photographic essay comparing and contrasting the exhibit designs of zoos.</p>	<p>Student's work was assessed using a detailed rubric. See p. 3.</p> <p>WOW</p> <ul style="list-style-type: none"> 10 photographs Time period reflects 1700-1990 Descriptive paragraph Conclusion Use of color Neat printing
<p>Science and Technology</p> <p>INQUIRY</p> <p>Standard 1:</p> <p>Note and describe relevant details, patterns, and relationships.</p> <p>Apply personal experience and knowledge to make predictions.</p> <p>Communicate ideas and questions.</p>	<p>Lead a discussion about jobs in the community.</p>	<p>Refer to Rubric for Survey & Discussion in Lesson Plan.</p> <p>Refer to Rubric for Survey & Discussion in Lesson Plan.</p> <p>Refer to Rubric for Survey & Discussion in Lesson Plan.</p>
<p>English/Language Arts</p> <p>Standard 3:</p> <p>Students will make oral presentations that demonstrate appropriate consideration of audience, purpose, and the information to be conveyed.</p>	<p>Working in cooperative groups, the students reviewed available resources to gather information on three main questions: when, how, and why animals were first exhibited. Each group presented its findings to the class.</p>	<p>Oral Presentation.</p> <p>This activity was evaluated for both content and public speaking.</p> <p>Content: accurate (sources cited)</p> <p>Visual: displaying information</p> <p>Speaking: Voice/ eye contact/ using a visual.</p>

LESSON PLAN Habitat

Objective

Having toured Capron Park Zoo students will record their observations of all living things, share their findings and discover the meaning of a niche.

Learning Standards

Science and Technology

- Note and describe relevant details, patterns, relationships.
- Apply personal experience and knowledge to make predictions.
- Communicate ideas, questions.

Life Sciences

- Present evidence that species depend on one another.
- Classify organisms according to the functions they serve in a food chain.

Mathematics

Patterns and Functions.

- Analyze functional relationships to explain how change in one quantity results in a change in another.
-

Materials

- Rubric for assessment
 - Questions posted for discussion
-

Procedure

Part I

Lead a discussion about jobs in your community. Post the following questions and record the answers on easel paper:

- What jobs do they use?
- What resources do they use?
- What times do they work?
- What other professions are they dependent upon?
- What special skills or tools do they need?
- What professions do they compete and/or cooperate with?

Part II

Survey Capron Park Zoo to identify niches.

Working in small cooperative groups, have the students tour Capron Park Zoo and record the living things they see, including animals they do not see but expect to find living there. Be sure their lists include the names of plants, predators, prey, scavengers, and decomposers.

LESSON PLAN continued

Part III

Compare and Discuss Findings

Compare group findings with the class. Have the class choose several items from the list, and use the questions above for these representatives.

Introduce the word "niche" and explain that an animal or plant's niche is its role in the community (what it does for a living).

Have the students identify niches which are overlapping and where there is competition or cooperation.

Discuss how learning about niches could help us protect animals and plants.

Assessment

Rubric for Survey & Discussion.

Survey and Discussion Rubric

4 - WOW

At least 25 species on survey list.
Survey lists include plant, prey, predator, scavenger, and decomposer species.
Demonstrates clear understanding of the concept of niches.
Actively participates in discussion..

3 - GOT IT

At least 20 species on survey list.
Survey lists include plant, prey, predator, scavenger, and decomposer species.
Demonstrates clear understanding of the concept of niches.
Participates in discussions.

2 - NOT YET

At least 15 species on survey list.
Survey lists incomplete.
Vague understanding of the concept of niches.
Little participation in discussions.

1 - JUST GETTING THERE

At least 15 species on survey list.
Survey list incomplete.
Does not demonstrate clear understanding of the concept of niches.
Does not participate in discussions.

TIMELINE

September

Contact community agencies

Define expectations

Schedule monthly field trips and guest speakers

October

CSL & CPZ teacher training sessions

Teachers developed units

November

Introduction to students

First unit rotation

December

Teacher/student evaluations

2nd rotation of units

January

Community Meeting at Capron Park Zoo. 3rd rotation

February

Radio ads aired

4th rotation

March

CPZ career interviews/ local cable

5th rotation of units

April

Plans for "Zoo Day"

6th rotation of units

May

Public Awareness Fair

"Zoo Day" May 19 - 20th

June

Student celebration

I learned about the different ways, besides its tusks, that the African Elephant was becoming endangered. Africa is developing by the minute and they need elephant's land.

Maria Coyne
Fifth Grade Student

Assessment

The students who participated in this community service-learning project were assessed in a variety of ways. In the initial stages of this project each child completed a pretest determining the child's science-related knowledge of endangered species, animal acquisition, and exhibit design as well as their experiences at Capron Park Zoo

Reflection journals began with the onset of the project. Students wrote daily entries to express their feelings about their CSL experience-its challenges, successes, and best moments-and to describe knowledge gained.

Rubrics were developed with the students to clarify the characteristics of quality products. Each mini-unit culminated in a performance assessment project, for example, a radio commercial about the zoo or a model of an exhibit design. In addition, the students assisted in creating a rubric to assess their general knowledge and behavior at their culminating activity, "Zoo Day."

CONNECTING TO MCAS: OPEN RESPONSE QUESTION



Cause and Effect

Read the following paragraph. Identify the cause and effects described within the paragraph and record them on a graphic organizer. Using your notes in the graphic organizer, write one paragraph in response to the question below.

Throughout the world over 600 animal and plant species that were once thriving are now threatened with extinction due to human activities. In tropical regions, ranchers, farmers and loggers have cleared nearly half of the original rainforest for human settlement. In addition, demands for fur coats, turtle shell and snakeskin accessories have caused illegal poaching activities to seriously threaten the existence of many species.

What is your responsibility to protect and preserve wild animals and the environment needed for their survival?

Challenges

The primary challenge to this project was the logistics involved in scheduling the monthly field trips and classroom guests connected with each of the six mini-units. During the course of the month-long unit the classroom teachers had to be flexible in the event the community partner needed to reschedule at the last minute. Adjusting to the work culture outside the academic arena established a greater need for flexibility and understanding.

Clarifying the degree of commitment the classroom teacher was requesting from the outside agency was critical in creating first-time partnerships.

The availability of teacher resources to match the topics like animal acquisition in the learner's web was limited.

Solutions

Create a master schedule to record the date, time, and location of each guest speaker and field trip.

Write a letter to your partner outlining the specific needs of the project and how they could assist the teacher/students/ school in completing their goals.

The Capron Park Education Coordinator developed materials, conducted lessons, and located commercially created materials for the teachers.

Extending the Vision

Though the zoo has not yet achieved accreditation, the staff considers Project CHOICE a success. As a result of the students' work and the Zoo Day event, city residents are fully aware of the zoo's need to receive accreditation. Support from the community is an important requirement for accreditation, as are long-term, on-site programs and partnerships with local educational facilities. Several students who were involved in the project have shown an interest in volunteering at the zoo. These students have asked themselves the project's central web question, "What is our responsibility to protect/preserve wild animals and the environment needed for their survival?" and answered it by offering to donate their time to the community zoo.

Since 1994, the students of Brennan Middle School have continued to expand their knowledge about animals through their partnership with Capron Park Zoo. Students reinforced learning standards from the Massachusetts' English frameworks (requiring them to interview, research, organize ideas) as they created illustrated children's books on the animals at the zoo to share with the city's preschool population.

The partnership between Attleboro Public School Department and Capron Park Zoo continues to develop through their participation in an annual summer CSL workshop for teachers. At this workshop, the officials at Capron Park Zoo explain to teachers their purpose, their programs, and their needs. In the beginning of the new school year, the Capron Park Zoo officials are invited to participate in a "Know Your City" fair to inform the student body of Brennan Middle School who the agencies are, their purpose, and their needs. Following the fair, teachers and students adopt a project. This annual activity maintains the lines of communication with partners, providing a means for new ideas to develop, while allowing students to choose their project. The Education Coordinator of Capron Park Zoo continues to develop both academic year and summer programs to involve the community's youth in understanding the challenges facing animals in the modern world.

IN CONCLUSION: School's Role in the Community

This project, whose origin sprang from students' interest, received state-wide attention and introduced many residents and city employees to "community service-learning." The momentum of this project developed slowly since it was the initial project for all individuals concerned. However, it took on a life of its own as the year progressed.

The daily attendance of the fifth grade students ranged from 95 - 98 %. Students were excited about learning - they were focused on the topic of the guest speakers, raising their hands and listening intently. Field trips to Capron Park Zoo to gather research about the design of the exhibits, to utilize the library resources, or to discuss their projects with the Education Coordinator motivated the students. Students began to ask their teachers how to revise their work before meeting with zoo personnel. Some students requested additional reading materials to locate more precise information. Hence, these fifth graders were experiencing self-directed learning—many for the first time. The year was marked by increased enthusiasm, by student motivation and by students experiencing the excitement of learning.

"Zoo Day" arrived and the students presented their knowledge of endangered animals, exhibit designs, and natural habitat through student-manned booths where visitors could play an accreditation game, a habitat game, or complete an endangered species puzzle. Over 1200 visitors completed evaluation forms citing the students' knowledge and the "great time" they had interacting with them. Capron Park Zoo concluded the project was a success—having raised residents awareness of the pending accreditation.

The *Boston Sunday Herald* "Meerkats and Fruit Bats and Sloth Bears - Oh My!" (May 7, 1995) captured the essence of this community service learning project. In addition, an interview with the Education Coordinator and Project Choice Coordinator aired on Channel 6.

This project stimulated teachers' professional development. Teachers participated in workshops on community resources, flexible scheduling, cooperative planning, performance assessment and portfolios. There were many firsts in this project- the first time teachers developed, implemented and shared their curriculum activities; the first time teachers co-planned with a community agency on a long-term basis; the first time an outside agency acted as an evaluator for student work, and the first time the community participated in a community service learning project.