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## Whales

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## Whales

### Abstract

Children develop thinking-language abilities through involvement in the language processes. A print-rich environment representing the many genres of literature extended across the curriculum offers meaningful experiences with the language functions. Such literature experiences and related expressive activities can provide in-depth study in the content areas, expanding the understanding of units' concepts and related vocabulary.

A science unit on whales for kindergarten was enriched through literature experiences. The activities were presented through teacher-directed sessions and student-initiated activities available in the learning centers. The result of this extensive print-rich environment was in-depth study and enthusiastic responses on the part of the students.

Whales

A Graduate Project  
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by

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## Abstract

Children develop thinking-language abilities through involvement in the language processes. A print-rich environment representing the many genres of literature extended across the curriculum offers meaningful experiences with the language functions. Such literature experiences and related expressive activities can provide in-depth study in the content areas, expanding the understanding of units' concepts and related vocabulary.

A science unit on whales for kindergarten was enriched through literature experiences. The activities were presented through teacher-directed sessions and student-initiated activities available in the learning centers. The result of this extensive print-rich environment was in-depth study and enthusiastic responses on the part of the students.

Children's literacy is nurtured as they engage in the language processes to create meaning (F. Smith, 1994). Therefore, schools need to offer a literature-based program that provides a print-rich environment in which children have many opportunities to engage in fulfilling language activities (Langer, 1995).

### Value of Literature-Based Language Arts

Literature-based programs support many literacy goals. Such programs offer models of language and content through quality literature representative of the different genres. From literature experiences, children can be given many options for expressive activity (Harms & Lettow, 1998). As a result, children surrounded by literature and print can constantly observe, learn, and inquire about written language. This is a natural part of their everyday life, not a rare phenomenon (Strickland, 1990).

By focusing on creating meaning through the language processes literature-based programs can promote major learning goals that foster children's thinking, language, and personal-social abilities (Huck, Hepler, Hickman, and Keifer, 1997). These programs have the potential for developing a community of learners by responding to the diverse needs and interests of the class members (Hancock & Hill, 1987). Because such programs provide much content and options for related expressive activity, children can find genuine reasons for interacting with others concerning the

meaning they have created in the language processes (Harms & Lettow, 1998).

Themes and units that present many concepts supported by extensive offerings of literature works can satisfy the different interests of children, energizing them to be active learners (Routman, 1991). When literature-based programs provide many genres for the study of themes and units, in-depth study can occur; thus, children can be challenged to extend their understandings and can develop more sophisticated thinking-language abilities (Bosma & Guth, 1995).

A print-rich environment can offer literature works characterized by a wide range of reading levels based on a common theme or unit. No child should be excluded from the learning environment because of low reading ability (Askew & Fountas, 1998).

Literature-based programs with options for learning and reflection on that learning can support children in taking charge of their learning. The elements of this type of program, which facilitates a community of learners, can promote children's intrinsic desire to learn (F. Smith, 1994; Cambourne, 1988).

Literature-based programs can assist children in making connections between the language processes - - comprehension and composition. The overlaps in the common tasks of these processes, reading and writing, are

often taught as separate entities when one support the other. Learning to read and write are interrelated processes that should be developed together (Strickland, 1990; Graves, 1994).

Connecting literature representative of the different genres across the curriculum with the language arts, social studies, science, and physical experiences can assist in integrating the common tasks of these areas. Such an approach to learning promotes children's in-depth understandings and also their realization of the interrelationships among the different areas of knowledge and their process. Such learning cannot be achieved through simple textbook study. An integrated approach supports students in exploring many perspectives as well as concepts and immerses them in exploring issues in ways that go beyond facts (Armstrong, 1993).

Bringing literature-based language across the curriculum allows children to engage in the functions of language in a genuine sense. As a result, children can find language experiences much more meaningful when they discover that language can assist them in creating meaning throughout their school experiences and other life experiences (Bosma & Guth, 1995; Smith & Johnson, 1994).

#### Science Programs Supported by Literature-Based Language Arts

Science programs in the past have usually not provided children with literature and related language experiences. The curriculum was often

presented through textbooks with some involvement with experiments.

Through literature and exploration, children can develop positive attitudes toward science study and in-depth understanding of science concepts and processes (Butzow & Butzow, 1989).

To support the development of literature-based language arts across the curriculum in kindergarten, I have begun to develop units representing this instructional concept. An example literature-base from the science area on whales is presented. The study of whales is appropriate for kindergarten because of their interest in animal life of different kinds. The unit includes teacher-directed activities and student-initiated activities through learning centers - - sustaining centers, and centers specific to the concept of whales.

#### Teacher-Directed Activities

The teacher presented several activities about whales to the students. First, she read aloud Gail Gibbons, Whales (New York: Holiday House, 1991) and then conducted a discussion on these mammals. The discussion included whales as mammals, various types of whales, and whales' ocean habitat. After the discussion, the teacher read aloud Scholastics First Discovery Book of Whales (New York: Scholastic, 1991). Following the reading experience, the students participated in a classification activity placing model whales in a pocket chart as being baleen or toothed.

Another teacher-directed activity involved the class going outside and measuring the length of different types of whales: humpback, blue, gray, sperm, killer, narwhal, and beluga. The students worked together using pieces of yarn to represent the length of each type of whale.

In another session, the teacher read aloud Judith Hodges Animals of the Ocean Whales (New York: Bateman, 1997). Students then participated in a discussion of how whales and people are alike and different. A list was compiled on chart paper. Another discussion at a later time was held on how whales hear. A listening game was played to help the students understand how a whale knows which direction a sound is coming from. One child was blindfolded and took the part of the whale. The rest of the students, as fish, formed a circle around him. When a fish made a sound, the whale had to move in the direction of the sound.

Because the implementation of guided reading is a district goal for the 1999/2000 school year, the teacher presented reading books on whales representing different reading levels to small groups. The texts discussed various types of whales.

The teacher read aloud Lynn Wilson's Baby Whale (New York: Grossett & Dunlap, 1991). The focus of this work was humpback whales and their babies and their migration. The class discussed humpback mothers and their young and the migration of humpback whales from Alaska to Hawaii.

Then, the class followed the migration of humpbacks from Alaska to Hawaii on a map.

Another discussion at a later time was held about the water temperature in Alaska and other parts of the Pacific Ocean. The question of how whales keep warm was presented to the students. To answer this question, a discovery activity was presented: Students placed their hand inside a glove that simulated blubber. The glove was created from plastic bags, one inside the other with vegetable shortening in between. The children placed their gloved hand inside a bucket of ice water, thus discovering for themselves how blubber insulates a whale.

After the teacher read aloud Humphrey the Lost Whale, by Wendy Tokunda and Richard Halls (Torrence, CA: Heian, 1986), the students took part in an individual writing project. The students wrote on how they might have tried to help Humphrey. Their stories and illustrations were compiled into a class book and placed in the listening/reading center.

The teacher proposed another question to the class concerning how the whales' environment has been effected by people. Then, the teacher read aloud the book Oil Spill, by Melvin Berger (New York: HarperCollins, 1994). Through listening to this text, the students became aware of how oil pollution has effected the ocean habitat for animals. The class then took part in an oil spill experiment: Working in groups of two or three,

each group was given water, a small container of oil, and some feathers. The students poured oil into the container of salt water and placed feathers in the liquid to study the effect oil has on feathers. When the students were asked to clean off the feathers, they discovered that all of the oil could not be removed. The students were asked to conclude how the oil affected whales' life in the ocean. A final teacher-directed activity was a class writing activity. The class wrote a letter to the Save the Whales Foundation to inquire how they could protect the environment of the whales.

#### Student-Initiated Activities

The learning centers related to the whale study offered literature experiences from different genres and related expressive activities. Two types of centers were presented: Sustaining centers offered a secure, predictable learning environment throughout the school year. Their content reflected the particular unit being studied. Centers specific to the unit were also presented.

As the unit progressed, centers were added to the classroom. Their contents were explained by the teacher and also on a teacher-made cassette tape. The students' experiences were discussed daily with the class in sharing time and with the teacher during conferences.

## Sustaining Centers

These sustaining centers were offered for the study of whales:

Listening/reading, poetry, interesting objects, and bookmaking.

- Listening/Reading Center

Picture books and information books were presented in the listening/reading center (see the appendix).

- Poetry Center

Selected poems from different works were presented at this center. The poems were introduced aloud to the students by the teacher. The students were able to illustrate the poems while listening to them from a teacher-made cassette tap.

Florian, Douglas. (1997). The Swim. New York: Harcourt

“The Whale”

Hoberman, Mary Ann. (1998). The Llama Who Had No Pajama,

illus. Betty Fraser. New York: Browndeer.

“A Thought”

“Whale”

Lewis, J. Patrick. (1990). A Hippopotomusn’t. New York: Trumpet.

“The Bluest Whale”

Rimanelli, Goise, & Oimsleur, Paul. (1972). Pictures Make Poems and Poems Make Pictures. New York: Pantheon.

“White Whale”

Ryder, Joanne. (1996). Winter Whale, illus. Michael Routhman.  
New York: Scholastic.

- Interesting Objects Center

Various objects from the ocean that a whale might encounter were displayed in this center for the students to examine: Barnacles, sea sponge, coral, starfish, various shells, seaweed, and sand.

- Bookmaking Center

In this center, the students used the directions and materials to create books about whales.

1. Each student chose one type of whale to write about and illustrate.

The pages were organized into a class book about whales.

2. After participating in a teacher-directed guided reading activity, the students created their own book of whales using the same format as their guided reading books.
3. The students created a class book about sperm whales. Using a picture model of the sperm whale, students dictated an adventure story about the whale to the teacher. The teacher

helped them put the pages together following the instructions in Harms and Lettow (1998).

### Centers Specific to the Concept Development

The teacher explained the centers to the children. Teacher-made cassette tapes were supplied for each center. They included the literature works read aloud and the directions for the expressive activities. These literature-based centers extended the study of whales.

- Whale Images Center

#### Science Standards K-3

- 4, Knows that diversity and unity characterize life.
- 5, Understands the genetic basis for the transfer of biological characteristics from one generation to the next.
- 7, Understands how species depend on one another and on the environment for survival.

#### Language Arts Standards K-3

- 2, Uses general frequently used words to convey basic ideas.

#### Literature Experience

Listen/read Cynthia Rylant's The Whales. New York: Scholastic, 1996.

### Expressive Activity:

1. Create stuffed paper whales.
2. Make images of sperm whales by folding a piece of paper following the step-by-step directions.

### Children's Responses:

The students enjoyed creating the stuffed paper whales. Many students created whale families and discussed how many types of whales travel in pods. After creating the folded sperm whales, the students created a dialogue between the whales incorporating dramatic play.

- Whale in a Bottle

### Science Standards K-3

6, Knows the animals require air, water, food, and shelter; plants require air, water, nutrients and light.

7, Understands how species depend on one another and on their environment for survival.

### Language Arts Standards K-3

8, Demonstrates competence in speaking and listening as tools for learning.

### Literature Experience:

Listen/read Raffi's Babu Beluga, illus. Ashley Wolff. New York:

Random, 1990.

**Expressive Activity:**

Make an ocean by putting sand, shells, weeds, and a white balloon inside a plastic pop bottle filled with blue-colored water.

**Children's Responses:**

The students enjoyed making the beluga whales swim in the bottle while listening and reading along with the song/book on tape.

- A Whale's Journey Center

**Science Standards K-3**

7, Understands how species depend on one another and on the environment for survival.

**Language Arts Standards K-3**

1, Demonstrate competence in the general skills and strategies of the writing process

3, Uses grammatical and mechanical conventions in written composition.

4, Gathers and uses general information for research purposes.

**Literature Experience:**

Listen/read Woods, Jakki. Across the Big Blue Sea. Washington, D.C.: National Geographic, 1998.

**Expressive Activity:**

Imagine that you are a whale on a journey across the big blue sea. Write about and illustrate the whale's experiences throughout the journey.

### Children's Responses:

The children enjoyed writing and illustrating an adventure about a whale in a book shaped as a whale.

- Character Center

### Science Standards K-3

8, Understands the cycling of matter and the flow of energy through the living environment.

### Language Arts Standards

2, Uses general, frequently used words to convey basic ideas.

### Literature Experience:

Listen/read Marcus Pfister's Rainbow Fish and the Big Blue Whale.

New York: North-South, 1998.

### Expressive Activity:

Make character finger puppets and role play the story.

### Children's Responses:

The students energetically role played the different characters in the story with the puppets they had made.

- Sight and Sound Center

### Science Standards K-3

15, Understands the nature of scientific inquiry.

### Literature Experience:

Listen/read Melvin and Gilda Berger's Do Whales Have Belly

Buttons? illus. Higgins Bond. New York: Scholastic, 1999.

**Expressive Activity:**

1. Use various instruments to explore hearing: dog whistle, bell, metal clicker, bike horn, and bottles.
2. Experience how a whale sees underwater by looking through a mask in a salt water tub.
3. Experience how a whale must turn its entire body to see ahead and how a whale must roll over to see above and below. Use two small mirrors at an angle so you can see only the reflection of the two sides.

**Children's Responses:**

The students eagerly observed and experimented to discover this information about whales.

- Humpback Whale Center

**Science Standards K-3**

- 4, Knows that diversity and unity characterize life.
- 7, Understands how species depend on one another and on the environment for survival.

**Language Arts Standards K-3**

- 1, Demonstrates competence in the general skills and strategies of the writing process.

**Literature Experience:**

Listen/read Francious Cozart's I Am a Little Whale. New York: Barrons, 1995.

**Expressive Activity:**

Using a green crayon for the land and a blue crayon for the ocean, color the ocean and the land on a picture map. Then, draw a picture of a humpback whale traveling from Alaska to Hawaii in the ocean. Add various objects of ocean life encountered on the whale's journey in your picture.

**Children's Responses:**

The children carefully colored their maps including details of the whale's journey. They shared their maps and pictures with the class while retelling the story of the whale's journey.

- Whales and Humans Center

**Science Standards K-3**

4, Knows that diversity and unity characterize life.

5, Understands the genetic basis for the transfer of biological characteristics from one generation to the next.

**Literature Experience:**

Listen/read Barbara Esbeen's Baby Whales Drink Milk, illus. Lambert Davis. New York: HarperCollins, 1994.

**Expressive Activity:**

From the two handouts, compare a whale body and a human body. Color the parts that they have in common. With teacher help, label and name the body parts.

### Children's Responses:

In comparing the body of a whale to a human body, the children discovered many differences and some similarities.

- Whales Afloat/Buoyancy Center

### Science Standards K-3

10, Understands basic concepts about the structure and properties of matter.

15, Understands the nature of scientific inquiry.

### Language Arts Standards K-3

8, Demonstrates competence in speaking and listening as tools for learning.

### Literature Experience:

View [The Encyclopedia of Awesome Animals](#). Brookfield, Conn: Copperfields, 1998.

### Expressive Activity:

Experiment with fat and water to discover how blubber increases the buoyancy of whales. Experiment with various objects to find how they differ in salt water versus fresh water: Do they sink or float?

### Children's Responses:

Students enjoyed the experience of being able to get their hands in the water to experiment and discover.

- Whale Length Center

## Science Standards K-3

5, Understands the genetic basis for the transfer of biological characteristics from one generation to the next.

15, Understands the nature of scientific inquiry.

## Language Arts Standards K-3

2, Uses general, frequently used words to convey basic ideas.

8, Demonstrates competence in speaking and listening as tools for learning.

## Literature Experience:

Listen/read Tom Wolpert's Whales For Kids, illus. Flip Nicklin.

Minneapolis: Northword, 1990.

## Expressive Activity:

Measure the length of different whales by completing a pictograph using units of ten: gray, pilot, humpback, sperm, right, dolphin, and blue whales. Ask a classmate to help you.

## Children's Responses:

The students in pairs were able to measure the different types of whales in units of ten.

- Baleen or Toothed Whale Center

## Science Standards K-3

4, Knows that diversity and unity that characterize life.

5, Understands the genetic basis for the transfer of biological characteristics from one generation to the next.

Literature Experience:

Listen/read Judy Nayer's Whales and Dolphins at Your Fingertips, illus, Greg Harris. New York: McClanahan, 1998.

Expressive Activity:

Graph the whales by cutting out the picture models and classify them as baleen or toothed.

### Conclusions

The concepts and related vocabulary of the unit on whales in the science area were extended through the literature-base and language art experiences. The extensive literature base and options for activities energized these kindergarteners. Many of them began to take charge of their learning; others needed teacher assistance.

In the future, I plan to provide more in-depth experiences in social studies and science units through literature-based language arts. Such an instructional approach can allow the integration of some social studies and science units.

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## Appendix

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