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## Literature-based language arts extended to science

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## Literature-based language arts extended to science

### Abstract

The development of a print-rich learning environment can facilitate the integration of the curriculum. A literature base representative of the different genres can contribute to the dimensions of learning. A literature-based unit on apples provided kindergarten children with quality literature experiences and many expressive activities that extended the students' understanding of the concept of apples. The unit was presented through teacher presentations and learning centers.

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**Jennifer Bruce**

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## Abstract

The development of a print-rich learning environment can facilitate the integration of the curriculum. A literature base representative of the different genres can contribute to the dimensions of learning.

A literature-based unit on apples provided kindergarten children with quality literature experiences and many expressive activities that extended the students' understanding of the concept of apples. The unit was presented through teacher presentations and learning centers.

A literature-based program promotes the instructional principle of whole language and therefore can enrich a school program in many ways. Whole language emphasizes instruction through complete units of language, in particular quality literature representative of the different genres. The focus is on creating meaning through involvement in the language processes. Learners are supported in using language for their own purposes, developing thinking-language abilities, and discovering the nature of language (Goodman, 1986; Smith, 1994).

A learning environment that promotes the concept of whole language is one that is predictable and secure and filled with many different possibilities to engage in the thinking-language processes. Sustaining centers, ones that are presented throughout the school year, and reflect the units or themes as they are presented, can assist in maintaining a nurturing environment. These centers can contribute to the stability of the program in transition as the unit or theme changes (Harms & Lettow, 1998).

#### Value of a Literature-Based Language Arts

Literature-based instruction is much more than just giving students quality literature. It is engaging them in the authentic processes with literature that all writers and readers naturally do and giving students support with these activities (Routman, 1991). Literature provides connections with children's prior experiences, offers springboards to

experiences, and extends the curricular base (Bosma & Guth, 1995).

Literature is relevant and interesting when it relates to what the reader wants to know. If literature is meaningful and purposeful then children can naturally make comprehension-composition connections (Smith, F., 1994).

A literature base extended across the curriculum can provide in-depth Learning experiences (Bosma & Guth, 1995).

A print-rich environment offers learners numerous opportunities to explore the concepts of print and different forms of the written message (Clay, 1975). In such a learning environment, children learn through active involvement in learning, thus having the experiences of being risktakers and having interactions with their peers over the meaning they have created (Harms & Lettow, 1998).

The teacher serves as the facilitator of learning and provides students with rich learning experiences based on quality experiences from the different genres (Norton, 1982). Besides presenting literature activities directly to the students, the teacher can provide options for literature experiences and related expressive activities through learning centers - - sustained centers and those specific to a concept, theme, or unit. Sustained centers are maintained throughout the school year to support a secure, predictable learning environment. Their content reflects the current classroom study (Harms & Lettow, 1998).

### Literature-Based Language Arts Extended Across the Curriculum

Integration resembles a jigsaw puzzle in which the pieces of the current curriculum fit together to generate a complete picture. All of the disciplines are interconnected and related to the life of the learner (Bosma & Guth, 1995). Integration makes use of common tasks, thus providing more efficient instructional experiences as well as in-depth understanding.

Literature can assist in the integration of the curricular areas. In the case of the literature-based language arts extended across the curriculum, the subject areas provide content and natural experiences with the functions of language (Norton, 1982; Routman, 1991; Bosma & Guth, 1995).

Considering the area of science is abstract for young children, it is meaningful to them when it is presented as a part of their personal world. The narration of quality literature can assist children in comprehending because the concepts are developed through a plot and frequently with related illustrations. Textbooks frequently present ideas with little elaboration (Butzow & Butzow, 1989).

### Implementation of a Literature-Based Concept in Science for Kindergarten

As a kindergarten teacher, I have engaged in the process of integrating literature-based language arts into the science unit on apples. This integration of the curricular areas allowed these young students to become involved in the functions of language and to strengthen the science study by

offering new dimensions (Langer, 1982). Science concepts were expanded through teacher-directed instruction and student-initiated activities presented through sustaining centers and centers specific to the unit (Harms & Lettow, 1998).

### Teacher-Directed Activities

The teacher presented several activities throughout the unit on apples that provided many interesting learning experiences for these young children. The study of apples was introduced by the teacher. She supported the students in developing a class list of vocabulary related to the concept of apples. The teacher recorded the student responses in a web format on a large chart sheet in the shape of an apple (see Figure 1 for photographs of the teacher-directed activities). To assist the children in thinking of words, they were directed to each sense: to see an apple, feel an apple, taste an apple, smell an apple, and hear an apple. After listing the words, they were grouped in categories. These categories prompted the children to make statements about apples. This activity was followed by a literature experience. The teacher read aloud Johnny Appleseed, by J. Gleiter & K. Thompson (Milwaukee: Raintree, 1987).

In another session, the teacher read An Apple Tree Through the Year, by C. Schneider (Minneapolis: Carolrhoda, 1992). The students participated in a discussion about how the apple tree changes throughout the seasons.

Then, the students were engaged in an art experience by making a mural of apple trees of the four seasons.

Another teacher-directed activity related to nutrition. The teacher led a discussion about an apple as a fruit. The students learned that an apple is considered a fruit because it contains seeds and that it is a nutritional

choice from the fruit group. We then listed foods made from apples. After listing different foods from apples, the children voted on their favorite.

Then, the children did a cooking activity. After reading the story, From Appleseed to Applesauce, by H. L. Johnson (New York: Lothrop, 1977),

the children followed a recipe for making applesauce, as the teacher went through the process.

As a culminating activity, the students participated in a field trip to an apple orchard. The students were involved in picking apples and learned about the growth process of an apple from a seed to a consumer. The students were exposed to a first-hand look at many of the tools that are used in an apple orchard and were amazed at how much work it took to grow apples. They also enjoyed some apple cider and a delicious apple treat. After returning from the trip, the students each made a page for

a class thank you book to give to our tour guide. They drew a picture of something they learned from the trip or their favorite part and dictated their story to the teacher.

### Student-Initiated Activities

Many literature-based activities were presented in the learning centers - - both sustaining centers and centers specific to the concept - - to extend the content of apples. These centers offered options for children to engage in the language processes (see Figure 2 for visuals of the center activity).

#### Sustaining Centers

The sustaining centers that assisted in creating a rich literature-based learning environment were a listening/reading, poetry/song, author/illustrator, interesting objects, and bookmaking.

- **Listening/Reading Center**

This center offered many picture books on the concept of apples, with teacher-made cassettes for listening pleasure. Children drew pictures of their favorite parts of the stories.

Carle, Eric. (1987). The Very Hungry Caterpillar. New York:

Scholastic.

Greenway, Kate. (1988). A Apple Pie. Frederick Warren.

Himmelman, John. (1986). The Talking Tree. New York: Viking Kestrel.

Hogrogian, Nonny. (1972). Apples. New York: Macmillan.

Johnson, Odette & Bruce. (1991). Apples, Alligators and Also Alphabets. Oxford.

Lerner, Sharon. (1967). Who Will Wake Spring? Minneapolis: Lerner.

Leseig, Theo. (1961). Ten Apples Up on Top. Random House.

Lobel, Arnold. (1978). Grasshopper on the Road. New York: Harper & Row.

Pilkey, Dav. (1966). A Friend for Dragon. New York: Orchard.

Silverstein, Shel. (1964). The Giving Tree. New York: Harper & Row.

Udry, Janice May. (1956). A Tree is Nice. New York: Harper & Row.

• Poetry/Song Center

• This center contained many poems related to the concept of apples.

These poems were introduced to the whole class on chart paper, then put onto sentence strips for the children to manipulate and sequence. The children used pointers as they read the poetry. Poetry and songs included were:

(The following poems were read to the children and they were asked to

- Bond, C. (1987). New York: Newbridge.  
"Way Up High in the Apple Tree"
- Livingston, M.C. (1982). Circle of Seasons. New York: Holiday.  
"Apple Tree"
- Merriam, E. (1986). Fresh Paint. New York: Macmillian.  
"Apple Joys"
- Moore, L. (1966). Something new begins. New York: Atheneum.  
"The Tree on the Corner"
- Sing-A-Song. (1985). New York: T.S. Denison & Co.  
"Apple" (tune: Bingo)  
"I'm a Little Apple" (tune: Little Teapot)  
"Apples" (tune: Shortnin' Bread)

- **Author/Illustrator Center**

This center contained books of the children's author/illustrator, Gail Gibbons. Gibbons is a leading young children's author in the area of non-fiction. Her books are richly illustrated and present to children a wide range of real world topics. She enjoys the learning process that comes with researching new topics and also traveling and meeting many interesting people in her pursuit of material for her books. Gibbons wrote these books on the concept of apples, The Season's of Arnold's Apple Tree, (San Diego: Harcourt Brace, 1988) and Apples, (New York: Holiday

House, 1999). In addition to a biography of her life and work, many other examples of her books were exhibited in this center.

From Seed to Plant. New York: Holiday House, 1993.

Monarch Butterfly. New York: Holiday House, 1991.

Sun Up, Sun Down. New York: Harcourt Brace, 1987.

The Reasons for Seasons. New York: Holiday House, 1996.

The Pumpkin Book. New York: Holiday House, 1999.

- Interesting Objects Center

Many interesting objects were placed in this center that related to apples. These objects offered sensory experiences as children explored the items at the center. Objects included were apples of all kinds and colors, apple seeds, an apple corer/peeler/slicer, an apple picking bag, an apple candle, apple candy and apple-flavored suckers, and photographs of an apple tree during the different seasons. The children were encouraged to gather objects of their own to add to the collection.

- Bookmaking Center

This center contained materials and directions for constructing books. The children made their own mini book about apples. The book entitled Apples, was put in sequential order by the children and focused on color words. The book was read in a whole class situation and reproduced

independently by each student. They then participated in a shared reading experience with a buddy.

### Centers Specific to the Science Unit: Apples

These literature-based centers, developed specifically for this concept study, extended understandings of apples.

- **Seasonal Photographs Center**

Science Standard (K-3): Understands basic features of the earth.

Language Standard (K-3): Understands connections between personal experiences and specific incidents in text.

Understands that reading, writing, viewing, speaking, and listening are ways to gather and disseminate information.

Organizes writing in a focused and logical manner.

Literature Experience:

Listen to/read Gibbons, G. (1984). The Season's of Arnold's Apple Tree.

San Diego: Harcourt.

Expressive Activity:

Sort the apple tree photos into the correct tubs that are labeled winter, spring, summer and fall. Draw pictures of the apple tree during the four seasons and cut out labels to match the correct season.

**Student Responses:** The students enjoyed looking at the photographs at this center. A few children stated that they did not know an apple tree had flowers. They were able to represent images of the apple tree during the four seasons and label them correctly. Some children chose to write their own labels instead of using the pre-made labels.

- **Apple Print Center**  
**Science Standard (K-3):** Understands basic features of the earth.  
**Art Standard (K-2):** Understands the visual arts in relation to history and cultures.  
**Language Arts Standard (K-3):** Demonstrates competence in speaking and listening as tools for learning.

**Literature Experience:**  
 Ex Listen to/read Warren, J. Apple Man's Secret. (duplicated with no publication information).

**Expressive Activity:**  
 Ex Listen to a storytelling experience and learn a secret about apples. Following the story, use one-half of an apple that has been pre-sliced (horizontally) to make apple star prints.

**Student Responses:** The children thoroughly enjoyed this center. They were amazed at the star inside apples, and had fun painting with an apple. One child said, "I can't believe there's a star inside of here! I can't wait to show my mom!"

- **Patterning Center**

**Science Standard (K-3):** Understands basic features of the earth.

**Math Standard (K-3):** Understands and applies basic and advanced properties of the concept of patterning.

**Language Arts Standard (K-3):** Demonstrates competence in speaking and listening as tools for learning.

**Literature Experience:**

Berger, S. & Moreton, D. (1999). Patterns. New York: Scholastic.

**Expressive Activity:**

Use two or three different colored apple cutouts to create AB, AABB, ABB, or ABC patterns. Glue them onto a white strip of paper and label the type of pattern.

**Student Responses:** The students enjoyed the freedom of making their own patterns. As the students worked, they shared their patterns. (I was amazed that in almost every group each child chose a different pattern.)

- **Apple Number Center**

**Science Standard (K-3):** Understands basic features of the earth.

**Math Standard (K-3):** Demonstrates numerical skills and

recognition.

**Literature Experience:**

• Listen to/read Ten Apples Up on Top. LeSeig, T. (1961). New

York: Random House.

**Expressive Activity:**

• This center contained a felt apple tree with 10 felt apples on a flannelboard. The students practice number recognition and counting abilities as you manipulate the apples on and off the tree.

**Student Responses:** The students worked together in groups to manipulate the apples on the tree. One group evenly divided the apples, and each child took turns adding their apple to the tree when it was time for their number. Another group had a student in charge of the apples, and they told the person what number came next. They also used the pointer and practiced counting from 1 to 10. One group even arranged them backward and did a countdown. It was interesting to see the variation from group to group.

- Johnny Appleseed Center

Science Standard (K-3): Understands basic features of the earth.

Language Arts Standards (K-3): Demonstrates competence in general reading abilities and strategies for reading literature (K-2). Demonstrates competence in speaking and listening as tools of learning.

Literature Experience:

Listen to/read Johnny Appleseed. Kellogg, S. (1988). Boston: Little, Brown.

Expressive Activity:

Cut out and number picture cards to retell the story of Johnny Appleseed. Create a storyboard by placing the pictures in sequence.

Student Responses: The students referred to the book as they placed the story cards into sequence. The conversations about Johnny Appleseed were interesting. One child said, "Why didn't he wear a hat on his head instead of a pot?" Another child responded, "Cuz' they didn't have hats way back then." Many children wanted to know if he still plants all of the trees today. They also all wanted to go eat an apple so they could plant an apple tree in their own yards.

## Conclusions

A literature-based science unit provided a rich learning environment. Integrating language arts into the science area allowed children to engage in the language processes within a content area. They had many opportunities to interact with their peers and take ownership of their learning. Student responses were positive and their knowledge base developed as they shared experiences with each other. The children became more independent as they worked in the learning centers and were truly excited about the learning processes.

## Professional References

Bosma, B. & Guth, N.D., Ed. (1995). Children's literature in an integrated curriculum: The authentic voice. New York: Teachers College.

Butzow, C.M., & Butzow, J.W. (1989). Science through children's literature. Englewood, CO: Teachers Idea.

Clay, M. (1975). The early detection of reading difficulties.  
Pemrose: Auckland, New Zealand: Heinemann.

Goodman, K. (1986). What's whole in whole language? Portsmouth, NH: Heinemann.

Harms, J.M. & Lettow, L.J. (1998). Literature and expressive activity, (4<sup>th</sup> ed), Minneapolis, MN: Burgess.

Langer, J.A. (1995). Envisioning literature. Newark, DE: International Reading Association.

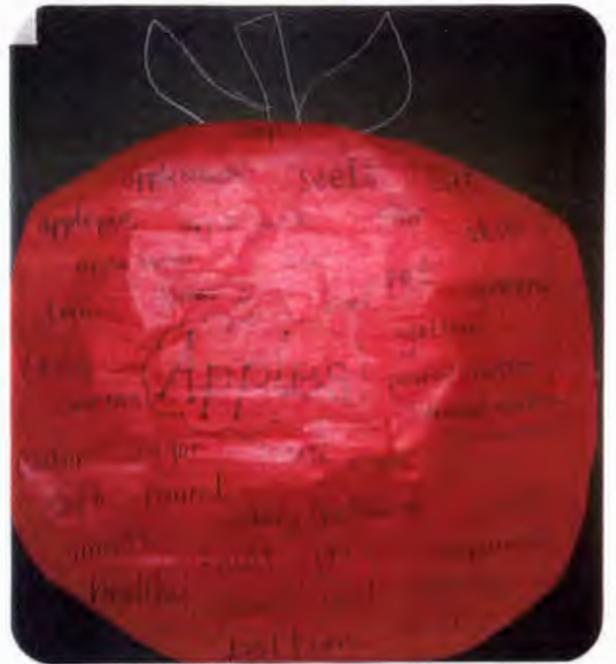
Norton, D.E. (1982). Using a webbing process to develop children's literature units. Language Arts, 59, 348-356.

Routman, R. (1991). Invitations: Changing as teachers and learners K-12. Portsmouth, NH: Heinemann.

Smith, F. (1994). Understanding reading, (5<sup>th</sup> ed.). Hillsdale, NJ: Lawrence Erlbaum.

Figure 1

Teacher-Directed Activities



**Apple Web**

Figure 2

Center Activity



Johnny Appleseed  
Center



Apple Print Center



Poetry/Song Center