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ABSTRACT

It is imperative that classroom teachers encourage emergent literacy without sacrificing literature or an introduction to some of the basic concepts in the content areas. This annotated bibliography features some examples of titles recommended by "Best Books for Children" which carry content standards recently established by national organizations and/or state departments of education for the lower grades. The bibliography lists four books which are compatible with science education content standards, four books which are compatible with history-social science standards, and five books which are compatible with mathematics content standards. Each annotation consists of a description of the book, a brief description on the concept addressed, and a class activity to be conducted after reading the book aloud. (NKA)

Using Literature to Help Emergent Readers Develop Concepts in Math, Social Studies, and Science.

by Mildred R. Donoghue

USING LITERATURE TO HELP EMERGENT READERS DEVELOP CONCEPTS IN MATH, SOCIAL STUDIES AND SCIENCE

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Low reading scores nationwide have caused considerable alarm since about half of the country's students are unable to read at even the "most fundamental level", according to the Los Angeles Times. These scores have caused increased emphasis on skills development, chiefly in the lower grades. That emphasis has resulted, in turn, in:

(1) Limited coverage of literature in reading sessions due to time constraints; and

(2) Near elimination of content area instruction, especially in science and social studies, and to some extent, in math due to the additional time demanded by the administrators and parents for literacy instruction of young children.

The latter situation exists despite the acknowledged need for all students entering the intermediate grades to have at least a minimal background in the content areas in order to progress satisfactorily through the challenging assignments in science, social studies, and math in grades 4-6.

It is imperative that we encourage emergent literacy without sacrificing literature or an introduction to some of the basic concepts in the content areas. Consequently, the following are examples of titles recommended by Best Books for Children (R. R. Bowker) which carry content standards recently and professionally established by national organizations and/or state departments of education for the lower grades. Each of these books can be read aloud to the class and followed by an activity which reinforces the concept presented.

SCIENCE EDUCATION CONTENT STANDARDS (K-4)
(National Academy of Sciences, 1996)

Earth and Space Science

The Sun, the Wind, and the Rain by L. Peters (Holt, 1988), 48 pp
Elizabeth builds a small sand mountain on the beach, which becomes affected by the sun, wind, and rain just like a huge earth mountain. What happens to Elizabeth's mountain is small-scale compared to the centuries-old geological process, but the transformations involved are the same.

Concept: Mountains can be eroded or transformed by the effects of the sun, the wind, and the rain.

Activity After Read-Aloud: Tell the students that they are hired investigators for Elizabeth. They must prepare written reports back to her, either in cooperative groups or individually, as to why her mountain changed and also make a prediction as to the future of her mountain of sand.

Life Science

My Visit to the Zoo by Aliki (HarperCollins, 1997), 33 pp.
Two cousins visit a modern zoo and are relieved to find that the animals are not all caged. The children describe the animals, tell where they came from, and whether or not the animals are endangered.

Concept: Zoos can help save endangered animals from extinction.

Activity After Read-Aloud: Divide the entire classroom into fourths, using string and marking each quadrant 1 through 4. Have the class measure the room size. As the day goes on, restrict the students to 3/4 of the room, then 1/2, and finally 1/4. Have them discuss or write what what it is like to have their environment restricted to smaller and smaller areas. Ask them to relate their experience (orally or in their journals) to that of what happens to endangered animals.

Physical Science

Fire! Fire! by G. Gibbons (HarperCollins, 1984), 40 pp.
The fire department takes steps to put out fires in four different locations: a city apartment, a country barn, a forest, and a pier on the waterfront.

Concept: Heat causes changes in the shape, color, and state of matter.

Activity After Read-Aloud: First discuss fire safety with the students. Then, with thongs, hold a small piece of paper over a lighted candle (6"-10" high). Have the class observe what happens to the paper. Repeat the experiment with a pencil, a paper clip, a small plastic object, etc. and encourage the children to describe orally or in their journals the changes in shape, color, texture, and state (or condition) of each item. Finally, extinguish the candle and review the rules for fire safety again.

Health Science

Gregory, the Terrible Eater by M. Sharmat (Macmillan, 1980), unpaged.
Gregory is a goat that refuses to eat the food his parents and other goats eat because he prefers good people-food. When his parents consult Dr. Ram, he advises them to introduce goat food gradually. Gregory however overeats and becomes ill. So his parents decide that it is better to have a healthy son who eats mostly good people-food than a sick son who overeats junk goat-food.

Concept: A balanced diet keeps animals and people healthy.

Activity After Read Aloud: Gregory likes bread and butter, eggs, fish, cereal, spaghetti, fruits, vegetables, ice cream and orange juice. Prepare a class bar graph showing Gregory's food choices on the left side and listing the children's names across the top. Then complete the graph, with the help of the students, to see which foods both they and Gregory like. Should a poster of the nutritional pyramid (developed by the U.S. Department of Agriculture) be available, help the children compare the graph choices with foods shown on the pyramid.

HISTORY-SOCIAL SCIENCE CONTENT STANDARDS (K-3)
(California Department of Education, 1998)

Kindergarten: Learning and Working Now and Long Ago

Jamaica's Find by J. Havill (Houghton, 1986), 30 pp.
Jamaica finds a little, stuffed dog in the park and decides to take it home and keep it rather than turning it in at the Lost and Found Office. With the help of her family, she solves her dilemma and so meets a new friend.

Concept: Being honest is an important part of daily life.

Activity After Read-Aloud: Discuss what should be done when we find an item that belongs to someone else; e.g., put an ad in the paper. Let the students pretend that they have each lost a pet or a favorite toy and then create a poster so that others can help them find the missing pet or item. Posters need pictures and words.

Grade One: A Child's Place in Time and Space

Peppe the Lamplighter by E. Bartone (Lothrop, 1993), 32 pp.
A poor immigrant family in New York City "a long time ago" must allow their young son Peppe to take a job lighting the gas street lamps, after his father becomes ill and cannot work.

Concept: Various jobs in the United States 100 years ago were very different from jobs today.

Activity After Read-Aloud: Create a class chart of things we have today that the people in the story did not have, and tell how those were or are used and the workers involved. Three columns will be needed: Now, Then, and Uses/Workers. Discuss.

Grade Two: People Who Make a Difference

Where Does the Mail Go?: A Book About the Postal System. by M. Berger and G. Berger (Chelsea House, 1994), 48 pp.
Matty writes a letter and drops it into the mailbox; later he writes another letter and puts it into a fax machine. Both ways of sending mail are described in this book about the U.S. Postal Service and its many workers.

Concept: Many workers help deliver the U.S. mail because the postal system is an important and involved process.

Activity After Read-Aloud: Have children each create their own book about the U. S. Postal Service. Give them several pages with opening sentences about the process of mail delivery and ask them to complete the paragraphs. They may also "frame" some of the pages by drawing borders. When the class is finished, the children may share stories with partners. Books may be bound, and if edited, later taken home.

Grade Three: Continuity and Change

The Drinking Gourd by F. N. Monjo (Harper, 1970), 64 pp.
A New England white boy in the 1850s helps an escaping black family of runaway slaves follow the drinking gourd (Big Dipper). He becomes for a short time a part of the Underground Railroad which led slaves to freedom in Canada.

Concept: Brave men on earth and the Big Dipper in the sky helped lead slaves to freedom on the Underground Railroad before the Civil War.

Activity After Read-Aloud: Let each child pretend that he or she is Tommy Fuller and ask the students to write what they think happened the day after Tommy's adventure.

MATHEMATICS CONTENT STANDARDS (PRE-K-2)
(National Council of Teachers of Mathematics, 2000)

Content Standard #1: Number and Operations

The Doorbell Rang by P. Hutchins (Greenwillow, 1986), 32 pp
Ma bakes 12 cookies for Sam and Victoria to share between themselves. However, each time the doorbell rings, more and more of their friends come to share the plate of cookies, which leaves fewer cookies for Sam and Victoria—until Grandma arrives with an enormous tray of fresh cookies.

Concept: Division is repeated subtraction, involving smaller but equal groups of items.

Activity After Read-Aloud: Divide the children into pairs. Give each pair 20 unifix cubes and ask them to find different ways to put the cubes into equal groups. Have the pairs record their findings. Then have them repeat the activity two more times, first using 18 cubes and then using 12 cubes.

Content Standard #2: Algebra

Sam Johnson and the Blue Ribbon Quilt by L. Ernst (Lothrop, 1983), 32 pp.
Sam Johnson is a farmer who learns to quilt when his wife is away visiting. Upon her return, he wants to join her Rosedale Women's Quilting Club. When it refuses his membership, he organizes the Rosedale Men's Quilting Club. Both Clubs compete to win the prize at the county fair. A crisis arises before their quilts reach the fair, but the members are able to create a winning design by working together on the Flying Sailboats pattern.

Concept: Patterns exist everywhere in all shapes and sizes.

Activity After Read-Aloud: In addition to the Flying Geese quilt pattern (by the men) and the Sailboats quilt pattern (by the women), 14 other actual patterns are shown as border designs in the book. Have the children each select one of the 16 patterns, draw it repeatedly on graph paper, and color it in. The completed patterns, correctly labeled, can be displayed on the bulletin board.

Content Standard #3: Geometry

The Greedy Triangle by M. Burns (Scholastic, 1994), 40 pp.
A triangle is unhappy with its shape and so keeps asking the Shapeshifter, again and again, to give it more sides and more angles. When it has many, many sides and many, many angles, it cannot keep its balance and friends begin to avoid it. So it decides to return to the Shapeshifter for the last time and become a triangle again.

Concept: Polygons are geometric shapes with sides that are straight line segments.

Activity After Read-Aloud: Provide the class with a large assortment of construction paper polygons in several different colors. Let each student select one piece and decide what that polygon could be part of; e.g., a quadrilateral could be the monitor screen on the computer. Then he or she is to glue the piece onto a sheet of white paper, draw a picture around it, and label the polygon. Compile the finished papers into a book entitled Polygons Are Everywhere and place it on the library table for all to examine and read.

Content Standard #4: Measurement

Inch by Inch by L. Lionni (Scholastic, 1960), unpaged.
An inchworm is almost gobbled up by a robin until the bird discovers that the inchworm has a special talent for measuring. So the captive inchworm measures part of birds (such as beaks and tails) until it is asked to measure the length of a nightingale's song—an impossible task! So cleverly, it inches its way to freedom.

Concept: Linear measuring involves laying out uniform units end to end repeatedly.

Activity After Read-Aloud: Give the students each a two-inch square of cardboard, and have them measure and mark a one-inch square in the middle. Let them each take their square home, fill the one-inch area with one or more kinds of dried items such as cereal, rice, beans, or seeds, and glue the items to the one-inch area. Have them return the cardboard squares carefully to school. After discussion, assemble all the squares and display them on the bulletin board.

Content Standard #5: Data Analysis and Probability

The Best Vacation Ever by S. Murphy (HarperCollins, 1997), 33 pp. A little girl decides that her busy family needs a vacation but she has no idea where they should go. She polls her parents, Grandma, brother Charlie—and herself—to find out what is important to each and records their responses to variables such as temperature, distance, favorite activities, etc. After collecting all the data and charting them, she discovers the perfect place for the family vacation. (Story told in verse.)

Concept: Collecting and analyzing data help people make better decisions.

Activity After Read-Aloud: Help students each make a chart that shows the months of the year across the top and the names of several friends down the side. Have each child ask all the friends which month they like best. Finally, have every child figure out which months are least often and most often the favorites. Discuss with the class some possible reasons for the choices made.

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