Author:

David M. Schwartz

Illustrator:

Steven Kellogg

Publisher:

Lothrop, Lee & Shepard

THEME:

Although it may not be feasible to count a million of something, we can imagine a million through skills of estimation and mathematical reasoning.

PROGRAM SUMMARY:

Reading Rainbow ventures into the magical world of math in How Much Is a Million? LeVar explores creative ways of counting to a million and uses simple techniques of grouping and estimating to solve everyday problems. In enjoyable segments, viewers visit the Crayola factory in Pennsylvania to see how millions of crayons are made, and New Jersey's Giants Stadium to see how the stadium crew and concession vendors prepare for the giant crowd on game day. This is the first of Reading Rainbow's literature-based math shows.

TOPICS FOR DISCUSSION:

Before viewing the program, ask the students, "How much is a million?" and discuss the variety of responses they offer.

Before viewing the program, discuss what sorts of things logically exist in "millions." Begin this discussion with objects that are more easily visualized, such as things that come in 2's, 3's, 4's, 7,5, a dozen, etc.

After viewing the program, obtain a copy of the book and read all the problems and solutions, allowing students to study the illustrations more closely. Discuss which solutions could possibly be verified and why others would likely be impossible to check.

Discuss the concept of "estimation" and why it is useful when thinking about very large numbers, such as million, billion, and trillion.

CURRICULUM EXTENSION ACTIVITIES:

Have students estimate in response to this question: "How many numbers can you write in a minute?" Perform the task more than one time, starting at a different place, i.e., start with 1, with 10, with 50, with 100. Compare what they were actually able to write with their estimates. Discuss factors that influenced their ability to do this task depending on the starting numeral.

Explore time relationships through estimation and experimentation. Pose questions such as: 'What can you do in a second?" "A minute?" ~wo minutes?" "An hour?" etc. Start lists of answers to these questions. Several experiments can be conducted at school, such as how long it takes to blink, smile, raise a hand, tie shoes, etc. Others, such as brushing teeth, will more likely be verified at home. Encourage students to estimate how long it takes to do a variety of tasks.

Marvelosissimo used calendars to represent years. Make a class calendar for the entire school year. Use oversized paper (about 18 x 24) so that there is plenty of room for students to write in the squares. Students take responsibility for daily recording of news and events in the squares. At the end of the month, a committee of two or three students can be responsible for making a picture that summarizes the month. (This picture is placed on the back of the preceding calendar page so the class calendar "works" like a wall calendar.) Have students make decisions about how they wish to handle school vacations. Bind the calendar pages with a spiral at the top, so that the calendar is a big book.

Using boxes containing different numbers of crayons (e.g., box of 64, 96, etc.), have students estimate the length of a crayon line of new crayons placed end to end. With students for whom the concepts of "inches" and "feet" are too abstract, use other reference points, such as estimating that the crayon line will be the length of the classroom or from the classroom door to the comer of the hallway. "Test' these estimations with lines of crayons.

Use a crayon as an alternative unit of measurement. Estimate first, then measure to address such questions as: "How many crayons long is the table?" "How many crayons tall are you?" "How many crayons long is the door?" and others.

Using boxes of 96 crayons, sort crayons into different color categories. Allow students to choose their own categories and then describe how they sorted the crayons. Possible categories for sorting include: by specific color (all the greens, blues, etc.); warm and cool colors; primary and secondary colors; light and dark colors; earth and sky colors; etc. It might be useful to co-direct this activity with the art teacher.

Crayola~ crayons have "colorful" names. Have students research the backgrounds on such colors as ~uchsia," "wisteria," and "cerulean." Discuss why names such as "macaroni and cheese" and "tickle me pink" are appropriate for the colors. Discuss the difference between "red violet' and "violet red." Begin lists of vocabulary words on pieces of colored construction paper and add to these lists as students encounter new color words. For example, the "red" list might eventually contain "scarlet," "crimson," and "vermilion" in addition to "rose" and "brick red."

Have students create new names for some of their crayons and write justifications for why their new names would be appropriate. Some students might choose to put their justifications in the form of a letter and send it to the Crayola company.

In the program, the concession vendors at Giants Stadium were preparing for crowds of people. Brainstorm synonyms for "crowd" and locate other collective nouns, including group names for animals as well as people. (For ideas, see Ruth Heller's A Cache of Jewels, Patricia MacCarthy's Herds of Words, and three books by Brian Wildsmith~ Wild Animals, Birds, and Fishes.)

Utilize mathematical reasoning to develop creative solutions to the following problem: How many miles can a new crayon color in a straight line until the crayon is completely used? Record the estimates and obtain an atlas and a world map and locate places that are the same distances away as the estimates. Have students explain how they arrived at their estimates. (When exploring problems such as this, remind the students that there are many possible solutions.)

ABOUT THE AUTHOR:

Although David M. Schwartz never intended to be a writer, he had a "sense of wonder" about science and math ever since he was a boy. He published his first piece, an article about weather vanes in Smithsonian magazine, when he was an elementary school teacher He and Steven Kellogg also collaborated on If You Made a Million. Schwartz makes his home in Yountville, California.

ABOUT THE ILLUSTRATOR:

Steven Kellogg enjoyed writing and illustrating stories when he was a small child and often entertained his younger sisters with them. His humorous, highly detailed drawings are the trademark of his many books, which include Paul Bunyan and Best Friends, both Reading Rainbow feature books, and The Island of Skog, a Reading Rainbow review book. Steven lives in Connecticut with his wife, Helen.

RELATED THEMES:

• large numbers
• Estimation
• crayon art
• Imagination
• mathematical reasoning

BOOKS REVIEWED BY CHILDREN:

ONE HUNDRED HUNGRY ANTS by Elinor J. Pinczes, illus. by Bonnie MacKain (Houghton Mifflin)

ONLY ONE by Marc Harshman, illus. by Barbara Garrison (Cobblehill/Dutton)

HOW MANY STARS IN THE SKY? by Lenny Hort, illus. by James E. Ransome (Tambourine)

SUPPLEMENTARY BOOKLIST:

THE RAJAH'S RICE: A MATHEMATICAL FOLKTALE FROM INDIA by David Barry, illus. by Donna Perrone (W. H. Freeman)

THE KING'S CHESSBOARD by David Birch, illus. by Devis Grebu (Dial)

COUNTING ON FRANK by Rod Clement (Gareth Stevens)

MILLIONS OF CATS by Wanda Gág (Coward, McCann & Geoghegan)

A CACHE OF JEWELS AND OTHER COLLECTIVE NOUNS by Ruth Heller (Grosset & Dunlap)

HERDS OF WORDS by Patricia Ma~arthy (Dial)

A MILLION FISH...MORE OR LESS by Patricia McKissack, illus. by Dena Schutzer (Knopf)

ONE ZILLION VALENTINES by Frank Modell (Greenwillow)

THE MILLIONTH EGG by Bernice Myers (Lothrop, Lee & Shepard)

HOW IS A CRAYON MADE? by Charles Oz (Scholastic) IF YOU MADE A MILLION by David M. Schwartz, illus. by Steven Kellogg (Lothrop, Lee & Shepard)

WILD ANIMALS (see also BIRDS and FISHES) by Brian Wildsmith (Watts)

Programs Details
Length:
30 minutes
Subject Areas:
Math
Audience Levels:
Ages 6 - 11
Order Number:
5-4495SG

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