

The Discrete Reviewer

Janice Kowalczyk

The Discrete Reviewer continues as a column with teachers' recommendations and suggestions for discrete mathematics resources for the classroom. The material in this issue comes mostly from the article being assembled by Debbie Franzblau and myself in "Discrete Mathematics in the Classroom: Making an Impact" to be published in 1997. Since an increasing number of K-8 teachers are bringing discrete mathematics topics into their classrooms, I have decided to dedicate this column to resources that make the literature/discrete mathematics connection.

Teachers, especially those at the primary level, have found that one of the ways to interest and engage students in mathematical thinking is through literature. In the early grades, weaving literature in with mathematics may be a necessity, since so much classroom time at this level is already dedicated to developing literacy. This column will highlight a short list of some of the books that teachers have

found connect well with discrete mathematics topics. This is not meant to be a comprehensive list and while there are a number of publications that provide more complete lists of literature-mathematics connections we are not aware of any that highlight topics in discrete mathematics.

As always, I would appreciate your comments and recommendations on this column in order to make future columns more useful to you. Your feedback on the resources that you try as a result of this column is also encouraged, so that we can develop a better appreciation of the usefulness of these materials to classroom teachers and continue to develop a discrete mathematics resource directory to share with others. Feedback and recommendations can be sent to:

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Literature and Discrete Mathematics

Katy and the Big Snow

by Virginia Lee Burton

Houghton Mifflin Co., Boston, 1943

Cost: \$4.95

Grade level: K-3

This is a classic children's book about a red tractor named Katy who as a snowplow saves the city of Geopolis following a huge snowstorm. It is because of Katy that the fire, police, mail, water department, and other city services are restored.

Teachers have found this book a natural introduction to the topic of Euler paths and circuits. The book even includes a map of Katy's route that could be used or modified for such activities.

Sam Johnson and The Blue Ribbon Quilt

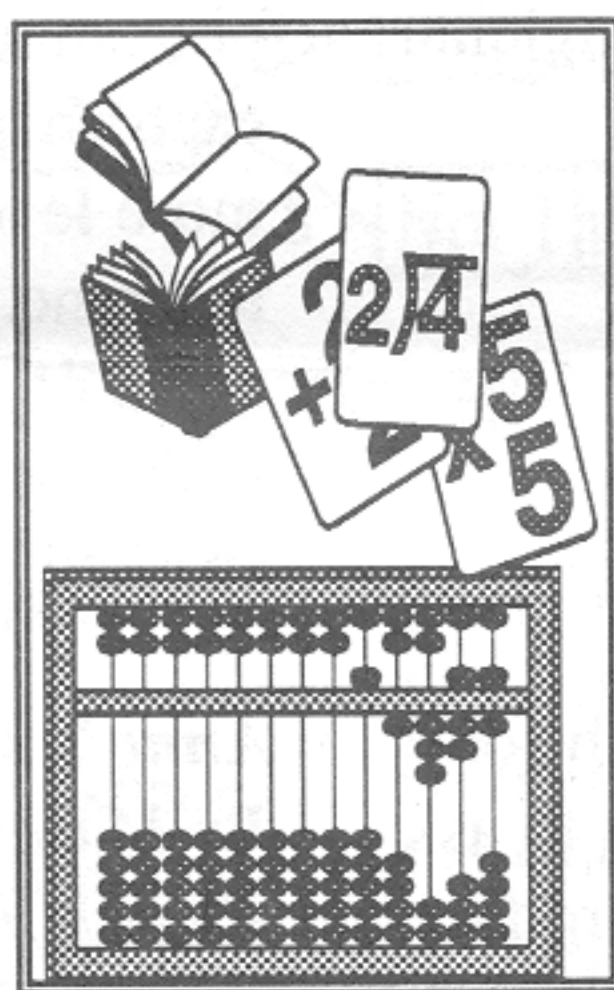
by Lisa Ernst

Wm. Morrow & Co., 1983

Cost: \$5.00

Grade level: K-3

This beautifully illustrated book raises both mathematical and social questions. While mending the awning over the pig pen, Sam discovers that he enjoys sewing the various patches together but meets with scorn and ridicule when he asks his wife if he can join her quilting club. The borders of the book feature various American quilt patterns which can be used to connect to mathematical concepts such as symmetry, tessellations, and transformational geometry.



A Cloak for a Dreamer

by A. Friedman

Scholastic, 1995

Cost: \$15

Grade level: K-3

A delightful book about the three sons of a tailor who are asked to sew a colorful cloak that will keep out wind and rain. The first two sons sew watertight cloaks using rectangles, squares and triangles, but the third son, the "dreamer", makes a cloak using circles, that is full of holes. This book is a nice introduction to tessellations and contains (for parents and teachers) a section on the underlying mathematical concepts in it.

Dr. Seuss Books

by Dr. Seuss

Random House Inc.

Cost: \$8 - \$15

Grade level: pre-K - 4

A number of the Dr. Seuss books contain the seeds for thinking about iteration and recursion. *The Cat in the Hat* and *Green Eggs and Ham* are just two that come to mind. In these stories, events or activities are repeated over and over but in each repetition a new event is added. Another Dr. Seuss book, *The Lorax*, is a variation on this with an environmental theme. As events happen in the Lorax other events are triggered. This can lead to a rich lesson on systems thinking. Events in *The Lorax* could be examined by students recursively to determine the critical events that cause the environment to go out of balance. Note: I still enjoy these books and especially the Lorax which has a message for us all.