

# IN DISCRETE MATHEMATICS

## Using Discrete Mathematics in the Classroom

Issue #9

Fall/Winter 1998

### Speaking Discretely...

Robert Hochberg

Welcome to the Fall/Winter 1998 edition of *In Discrete Mathematics*. This issue is especially diverse across grade levels and offers something for everyone.

Ann Lawrence has "uncovered" some discrete mathematics in the children's classic *From the Mixed-up Files of Mrs. Basil E. Frankweiler*, and has created a series of activities

which can be adopted or modified for any classroom old enough to read the book. In her article, Erica Dakin Voolich introduces us to a toy which can provide food for mathematical thought in any primary or secondary grade. Judy Gugel and Judy Grogan show us how successfully coloring can be introduced into Kindergarten and first grade, respectively,

and Jill Dunlap presents a coloring exercise, *The Farmer's Daughter*, which challenges her gifted sixth graders! Finally, Janice Kowalczyk reviews some discrete book resources. Enjoy!

### M3 (Midnight Mischief at the Met)

Ann Lawrence

#### Connecting Children's Literature With Discrete Mathematics Topics

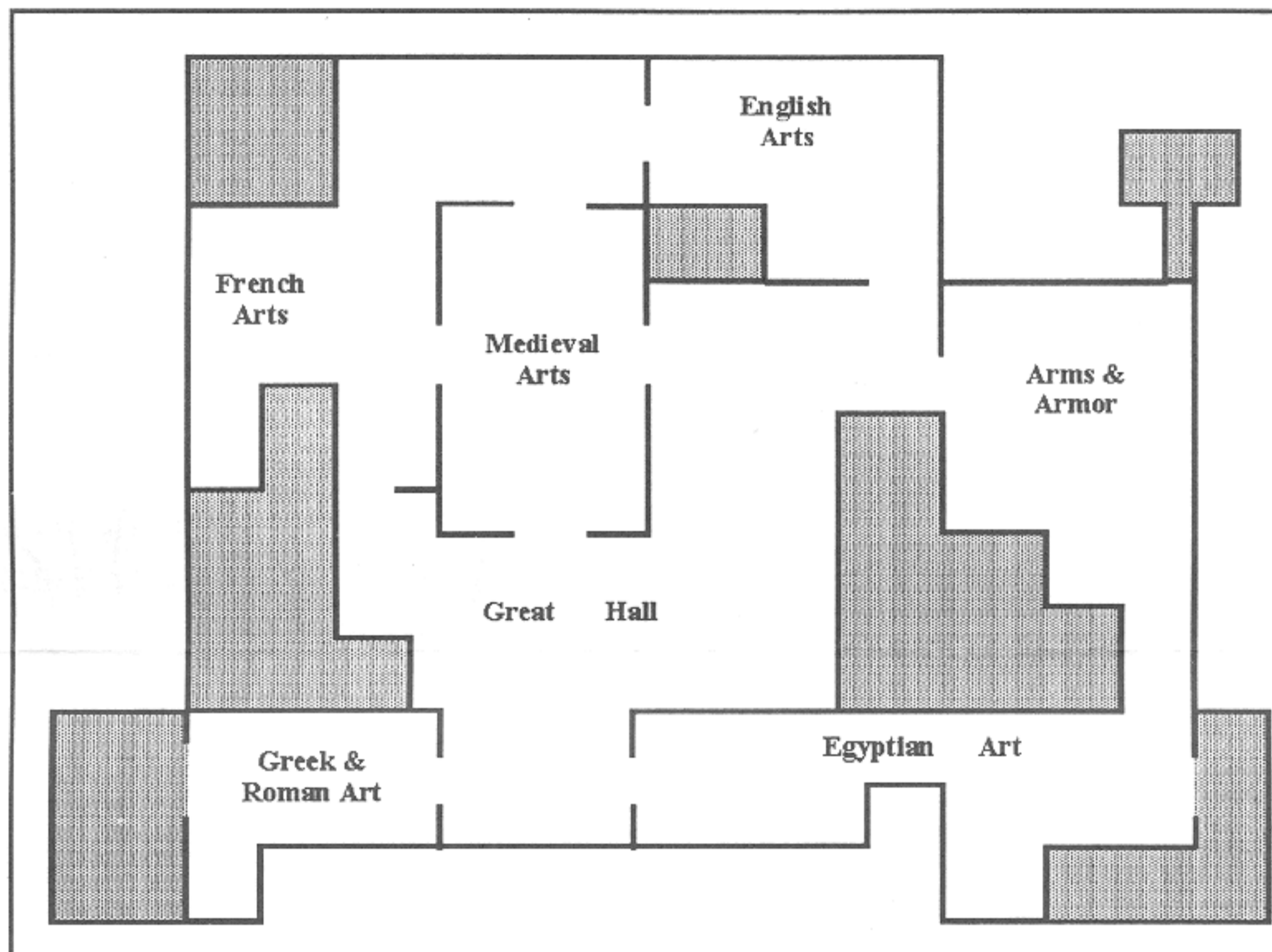
As teachers, we search for ways to get the most out of every classroom minute. Many of us have found that children's literature offers a rich source for explorations in mathematics. Numerous stories provide authentic, thought-provoking examples of human experiences which also offer vivid, engaging contexts for mathematical investigations.

Many discrete math topics can be explored in such contexts. For example, *From the Mixed-up Files of Mrs. Basil E. Frankweiler* by E.L. Konigsburg (New York: Yearling Books, 1967) provides a setting for introducing Euler paths and circuits in middle school. To introduce the lesson, read a passage from the book or have a student

who has read it summarize the plot. In the story, Claudia ran away from home and hid in the Metropolitan Museum of Art to make her parents appreciate her. She took her brother too, and the book describes their adventures there, including solving a mystery about a beautiful statue. She also wants to feel different after her adventure, and this goal adds a wrinkle to each experience.

You can pose the following problem to your students: *For entertainment one night, Claudia took several coins from those she and Jamie found in the fountain and placed one in each major doorway on the main floor of the museum. She challenged "Sir James" to pick up all the coins one by one. According to Claudia's rules, in order for Jamie to succeed he must gather all the coins by going **only once** through each doorway connecting major galleries to each other or to the Great Hall. (Ignore doorways to the shaded areas.) Can you find a path Jamie could follow? Your solution may start and end in any of the major galleries, but remember that Jamie may pass through each doorway only once!*

(continued on page 2)



### In This Issue

Speaking Discretely.....	1
Midnight Mischief at the Met.....	1
The Discrete Reviewer.....	3
Combinatorics, Euler, and Toy Tracks.....	5
Coloring in Kindergarten?.....	8
Coloring in Grade 1.....	9
The Farmer's Daughter.....	10