

Nemeth Code Symbols Used in the Middle Grades and Strategies for Supporting Math Learning

Lesson 6: Connecting Middle School Literature to Math Concepts and Symbols

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Learning Objectives

Participants will be able to:

- Select trade books to support students' learning of math.
- Implement approaches and strategies to make books meaningful to our students.
- Generate ideas for using trade books with individual students.

Why Use Trade Books?

Children's literature has the potential to enhance mathematics learning by:

- Building students' interests and positive attitudes for learning
- Engaging students in discourse and ideas
- Deepening conceptual understandings and connections to students' lives and lived experiences
- Providing meaningful and engaging contexts for learning
- Building math vocabulary
- Teaching math with trade book is more comfortable for those who prefer teaching ELA

Deepening Students' Mathematical Understanding with Literature
by Monroe & Young, NCTM, 2018

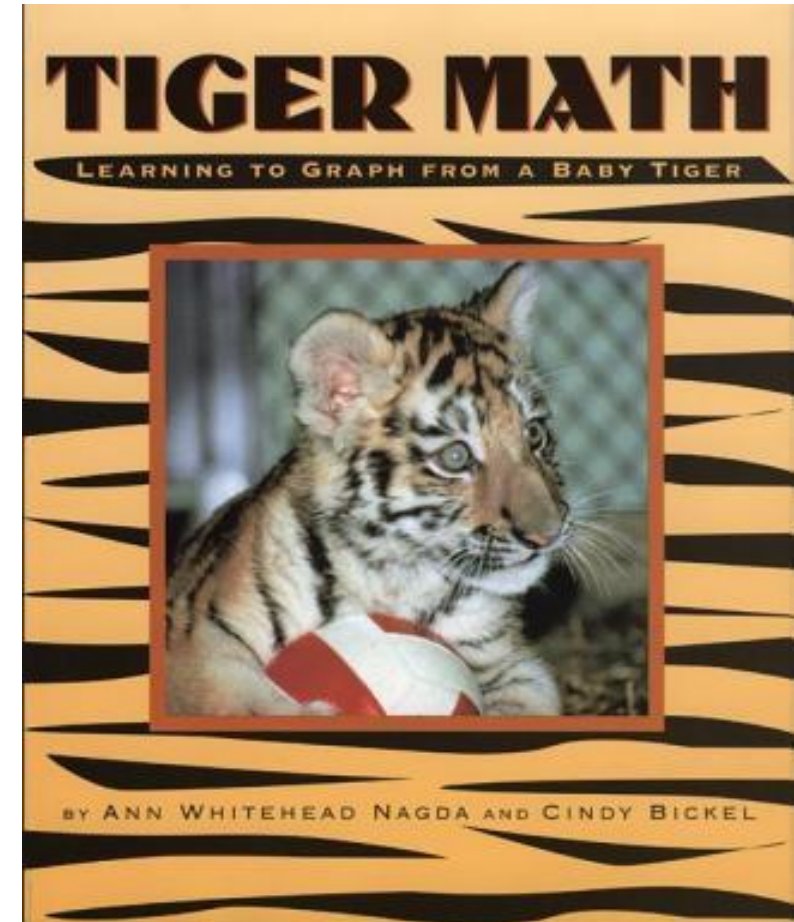
How We Selected Books ...

1. Considered high-quality children's trade books.
2. Examined extent to which mathematics is naturally embedded in the story and/or information (vs. workbook-like books).
3. Ensured that the mathematics aligned with:
 - a. Conventions from a disciplinary perspective, and
 - b. Math standards for targeted grade range
4. Considered the potential for the book and the mathematics to meaningfully connect to children's lives and interests.

**Please refer to the one-page
overviews for each book as we
discuss them.**

Tiger Math

- Book Summary
- Context for Learning
- Key Vocabulary
- Mathematics Standards
(Common Core State Standards
for Math, CCSSM)



Tiger Math Activities

1. Research an animal of interest and make a graph relating to the information learned.
2. Gather students' own past growth data from their families and make a graph about their first few years.
3. Compare and contrast the different types of graphs in the book and discuss advantages and disadvantages of different representations for different data.
4. Visit a zoo or animal shelter and collect different data to graph.
5. Graph the growth of a plant over time.
6. Research careers associated with animals. Look at data like salaries and job need and growth.

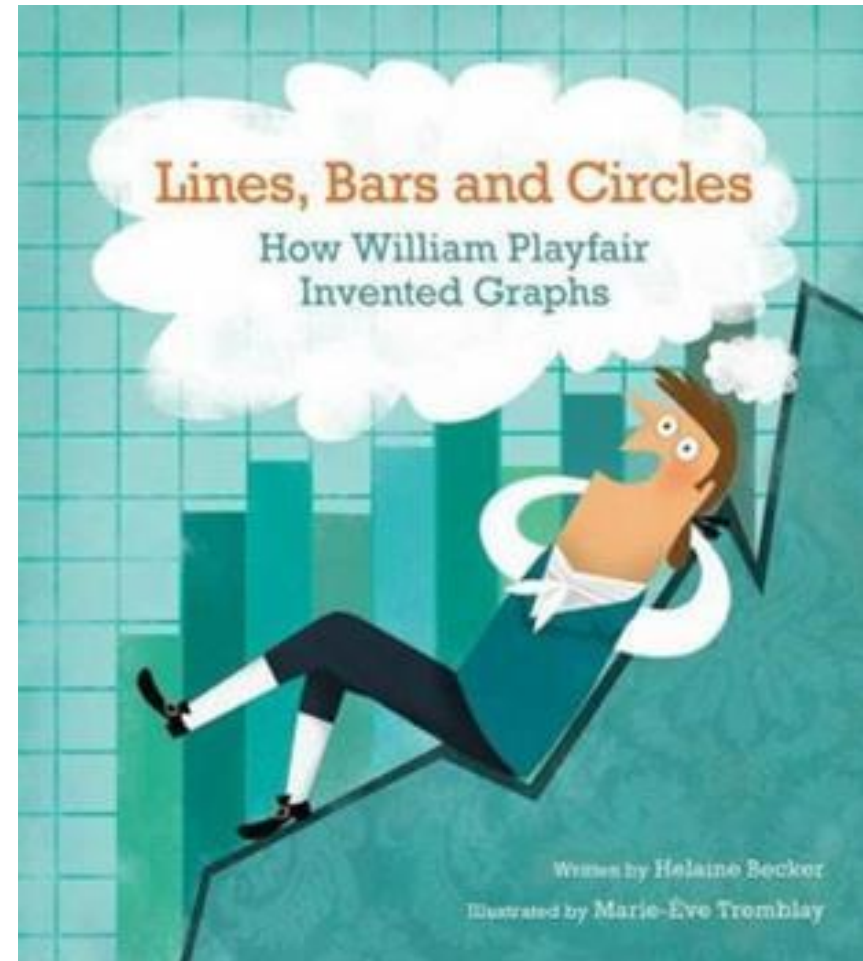
Activity 6A

Pause the recording and jot down your ideas for:

1. How does this book provide a meaningful context to engage **your** student(s) in math learning?
2. How is the content aligned with what your student(s) need to learn?
3. Which one or more of these activities would be effective with your student(s)? Why?

Lines, Bars, and Circles

- Book Summary
- Context for Learning
- Key Vocabulary
- Mathematics Standards (CCSSM)



Lines, Bars, and Circles Activities

1. Graph the student's progress through a graph.
2. Design a classroom poll and display the results graphically.
3. Look at graphs in other contexts like weather forecasts.
4. Examine data in a table and how one set of data can be displayed in two different ways (line graph vs. bar graph). Discuss when to use each type of graph or chart.
5. Walk through the school and look for how different classrooms use graphs.
6. Go through a newspaper and look for how graphs are used in the news.

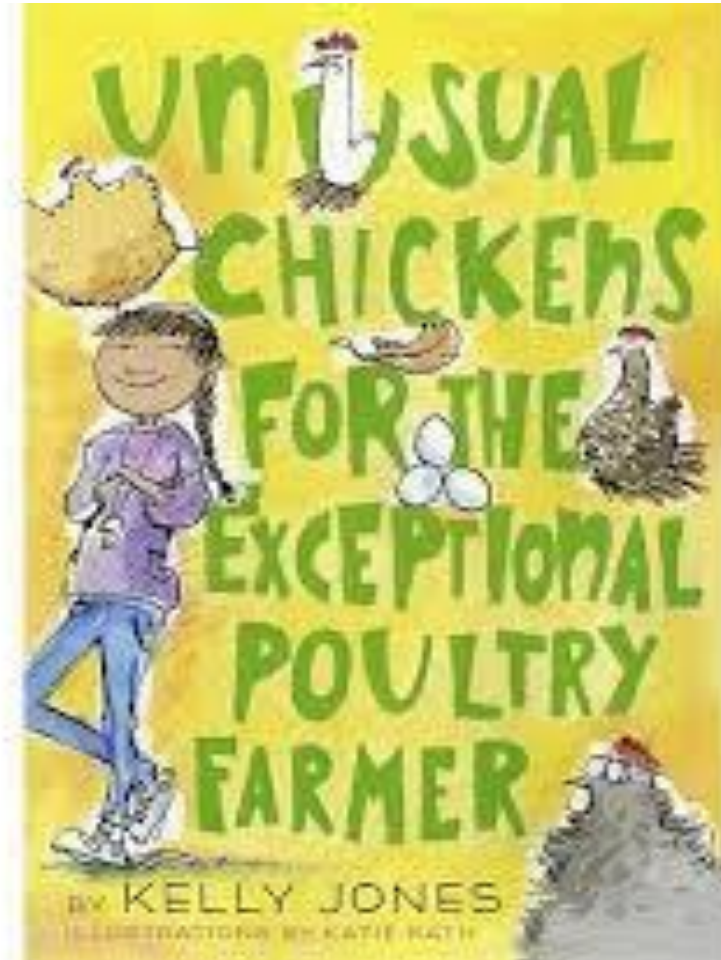
Activity 6B

Pause the recording and jot down your ideas for:

1. How does this book provide a meaningful context to engage **your** student(s) in math learning?
2. How is the content aligned with what your student(s) need to learn?
3. Which one or more of these activities would be effective with your student(s)? Why?

Unusual Chickens for the Exceptional Poultry Farmer

- Book Summary
- Context for Learning
- Key Vocabulary
- Mathematics Standards (CCSSM)



Unusual Chickens for the Exceptional Poultry Farmer Activities

1. Calculate costs of raising a pet.
2. Write a letter to a teacher or family member explaining the costs and recommended budget for a pet or classroom animal and provide a recommendation as to whether this would be a good decision and why.
3. Calculate area and perimeter of pens or garden plots.
4. Compare prices using symbols of comparison. Write the associated number sentence.
5. Visit a farm or zoo. Interview a farm worker or zookeeper about raising animals.

Activity 6C

Pause the recording and jot down your ideas for:

1. How does this book provide a meaningful context to engage **your** student(s) in math learning?
2. How is the content aligned with what your student(s) need to learn?
3. Which one or more of these activities would be effective with your student(s)? Why?

Sentence Frames, Games, & Flash Cards

- Sentence frames scaffold learning by inserting blanks for the students to fill in. The blank could be a symbol, a word, or a phrase.
- Use the student's interests, strengths, and needs to create games.
- Flash cards can be used as a warm-up and to practice numbers or symbols that the student confuses. Many of the flash cards could also be used for games.

Beginning with Braille by Anna Swenson, APH Press, 2016

Fitting it In

- Suggest these books as read-alouds
- Lead a whole-class lesson
- Incorporate during one-on-one time
- Use as a remediation activity
- Conduct a small-group or individual virtual lesson