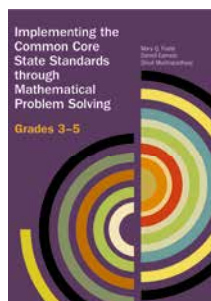


Refocus for spring

Books

From NCTM

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Implementing the Common Core State Standards through Mathematical Problem Solving, Grades 3–5. Mary Q. Foote, Darrell Earnest, Shiuli Mukhopadhyay, 2014. Foreword by Frances Curcio, series ed. 123 pp., \$26.95 paper. ISBN 978-0-87353-724-7. Stock no. 14446. National Council of Teachers of Mathematics; www.nctm.org.

What can I do to help my students develop the problem-solving strategies they will need to be successful? The authors suggest integrating engaging tasks that lead to rich classroom discussions. This book provides thirty-eight problems and tasks organized into major mathematical topics, such as algebraic thinking, operations in base ten, fractions, measurement and data, and geometry. Each task is broken into three sections:

1. Launching the task
2. Exploring the task
3. A summary discussion

The authors provide a variety of tasks at various ranges of difficulty. Every task I have tried in the classroom has led to a deeper discussion of the mathematics. In one task, students are asked to analyze and sort the capital letters on the alphabet chart:

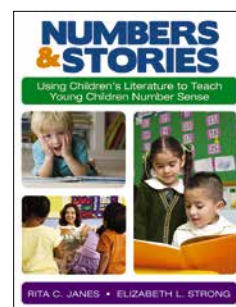
Sort them by which letters have parallel lines, obtuse angles, perpendicular lines, or straight angles. Which feature had the most

letters; which had the least? Which letters were difficult to find a category for?

In another task, students receive three scenarios that involve division with a remainder. Students began to explore the significance of the remainder and how it is expressed in context.

With each task, the authors guide the teacher with tips, questions to ask during the task and afterward, and ways to adapt the task. These features allow the teacher or math coach to be more successful in incorporating the strategies and tasks used in this book.—*Daniel Schroll, Sterling Elementary School, Sterling, Virginia.*

Numbers & Stories: Using Children's Literature to Teach Young Children Number Sense. Rita C. Janes and Elizabeth L. Strong, 2014. Pre-K–Grade 2, 209 pp., \$38.95 paper. ISBN 978-1-4833-3094-5. Stock no. 13802. National Council of Teachers of Mathematics and Corwin, a Sage Company; www.nctm.org.



Janes and Strong integrate children's math and literature in a meaningful manner in this book, which supports preschool and early elementary school teachers in providing mathematically rich and engaging opportunities

around read-alouds. The authors begin with the importance of creating an effective learning environment and then highlight productive discourse, questioning, and other key elements that are needed. They present ready-to-use lessons, referred to as “investigations,” to integrate the two subjects through an engage-and-explore format. The investigations are organized in Common Core math units and feature multiple tasks that can be used individually, with an entire group, or in a small group. One example is “Investigation: Quick Images to 5” with

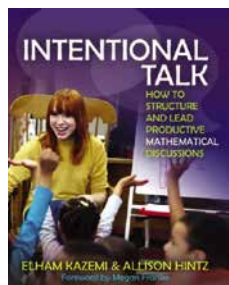
subitizing tasks grounded in the read-aloud book *Olly and Me 1 • 2 • 3*.

Subject integration is difficult, and many products labeled as interdisciplinary combine content aspects without thoughtfulness. Janes and Strong provide investigations with a natural and powerful collaboration between literacy and math. I used *Olly and Me 1 • 2 • 3* with students, and the read-aloud became a powerful hook into rich mathematical work. The story offers a common backdrop that all could relate to and discuss during their mathematics tasks.

One caution is that the book claims the investigations are “research-based” but does not elaborate on the research that lessons were derived from. The investigations do feature engaging mathematics activities, but it would be helpful—especially for response-to-intervention planning—to know exactly which research was used.—*Katherine Phelps, University of North Carolina–Chapel Hill, doctoral student.*

From other publishers

Intentional Talk: How to Structure and Lead Productive Mathematical Discussions, Elham Kazemi and Allison Hintz, 2014. Foreword by Megan Franke. 168 pp., \$20.00 paper. ISBN 978-1-57110-9767. Stenhouse Publishers; www.stenhouse.com.



This book does an exceptional job of supporting classroom teachers of mathematics in encouraging intentional mathematical discussions that promote critical thinking, student engagement,

and conceptual understanding. Authors Kazemi and Hintz guide teachers to begin building the groundwork for establishing effective mathematical discussions through two distinct types: open strategy sharing and targeted discussions. The authors should be commended for the explicit vignettes that model each discussion type as well as the planning templates that assist teachers to begin thinking about the steps needed to hold intentional,

high-quality mathematical conversations. Teachers will start to realize that mathematical discussions can be focused as well as serve as a way to formatively assess student thinking. The authors base their work on four principles:

1. Discussions should achieve a mathematical goal.
2. Students need to know what and how to share.
3. Teachers must orient students to one another and the mathematical ideas.
4. Teachers must communicate that all students are sense makers and that their ideas are valued.

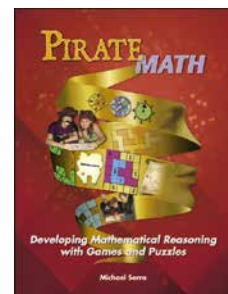
These principles are evident in the context of this book and reflect what is necessary to create meaningful mathematical discussions; Kazemi and Hintz make it clear that no “one-size-fits-all” approach to mathematical conversations exists.

So, if you are new to the idea of holding mathematical discussions in your class, or if you want new ways to make those conversations more meaningful, I highly recommend that this text serve as your guide.—*Julie N. Adkins, Ashford University, Glen Allen, Virginia.*

Pirate Math: Developing Mathematical Reasoning with Games and Puzzles, Michael Serra, 2014. 275 pp., \$32.95 paper. ISBN 978-0-9834-0991-5. *Playing It Smart*; www.michaelserra.net.

Pirate Math is part of Michael Serra’s series on developing mathematical reasoning through games and puzzles. The author describes this particular title as a combination of “polyominoes, pirate maps, and treasure hunts.” I found the mixture to be both interesting and challenging.

The chapters progress through seven areas, or levels, with puzzles related to polyominoes, coordinate graphing, geometry, and cryptography. Each topic is clearly introduced along with connected mathematical principles. Although pirates are the theme, other historical and real-world connections are made, as is the relevance of the Common Core’s Standards for Mathematical Practice (SMP), primarily SMP 1, relating to perseverance.

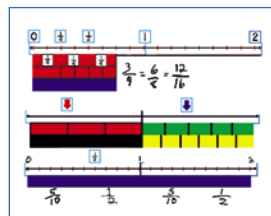


The book features a wide variety of black-and-white graphics, including maps, grids, graphs, and photographs. Besides adding to and enlivening the text, these visuals aid the problem solver, who can also glean enjoyment and enrichment from some extras: quotes, appendixes, and footnotes. I appreciated the wisdom and wit of quotations from the likes of Robert Louis Stevenson, Albert Einstein, and even *Pirates of the Caribbean* character Jack Sparrow. The appendixes support the text with game sheets and added instructional materials, along with hints and solutions to Serra's exercises and puzzles. Footnotes include the basic reference information and also contain interesting tidbits, such as historical definitions and facts about dominoes and time zones.

This book would be a novel and useful resource for middle and high school mathematics instructors. Some fourth- and fifth-grade teachers and their students might enjoy the challenges as well.—*Melissa A. Campbell, Wills Valley Elementary School, Fort Payne, Alabama.*

Etcetera

Magnetic Fraction Number Line, Grades 3–5, \$24.95. *Didax*; www.didax.com.



This product was created to help students develop an understanding of fractions as number. Students could also use it to explore equivalence, ordering, and numeric operations with fractions. Designed to be used during whole-class instruction or within small instructional groups, the set includes magnetic pieces that represent halves, thirds, fourths, fifths, sixths, eighths, tenths, and sixteenths. Arrow magnets are also included for pinpointing fractions on the number line. The three number lines consist of two pieces that together make a thirty-two-inch number line.

Fraction pieces are unlabeled, but separate magnets contain common fractions and can be used for labeling. To match the number lines, tile pieces must be positioned correctly. Assembling both parts of the number line before use is

important. Fourth graders successfully visualized fractions as numbers when they used the tiles in conjunction with the magnetic number lines.

Illustrated sample lessons are provided and include references to CCSS math content areas and the Standards for Mathematical Practice. Helpful illustrations show how to use the product. Overall, I would recommend this product, but read the instruction booklet and sample lessons before attempting to use it with students.—*Janet McCoid, Independent Instructional Consultant, South Plainfield, New Jersey.*

Unifix® Cubes 1–120 Number Line, 2014. *K–Grade 2*, \$24.95. *Didax Code 211504. Didax*; www.didax.com.



The Unifix 1–120 Number Line kit by

Didax is designed for students in kindergarten through grade 2 and comprises twelve interlocking sections holding ten Unifix cubes each. The sections fit together tightly, which makes assembling and disassembling challenging for young children. Unifix cubes are needed when using the number line and are not included. The number line can be used for visually exploring numbers 1–120, for counting, comparing, and adding and subtracting. It can also be used for beginning place-value concepts.

When we used the number line with small groups of first-grade students, the length of the fully assembled number line (more than seven feet long) required that students work on the floor in the back of the classroom. They enjoyed taking turns tossing one die and placing the corresponding number of Unifix cubes on the number line. As students placed cubes on the number line, they said and wrote addition number sentences, for example, $3 + 5 = 8$ and $8 + 6 = 14$. When students reached the end of the number line, they reversed procedures by rolling the die and removing the corresponding number of cubes.

First graders enjoyed using the number line, but the cost, the fully assembled size of the number line, and the number of students who can use the number line at the same time are factors that one should consider before investing in this product.—*Karol Yeatts, FCTM, Winter Haven, Florida.*