# New books for **National Library Week**

#### **Books**

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**Building a Math-Positive Culture: How to** Support Great Math Teaching in Your School Cathy L. Seeley, 2016. 58 pp., \$12.99 paper. ISBN 978-1-4166-2246-8. Stock no. 15307. National Council of Teachers of Mathematics, copublished with ASCD and NCSM; http://www.nctm.org



This book describes characteristics of successful math programs and provides guidance on how to improve math programs in schools. Its purposes include helping math education leaders understand what good math programs look like, supporting effec-

tive teaching, and using best approaches to make positive changes in mathematics programs. The content of this book is appropriate for school leaders seeking to improve math programs in schools.

This is a valuable resource for education leaders wanting to build math programs that allow students to learn mathematics conceptually, while also supporting teachers. It is well organized, with headings and logical sequencing that help readers find and apply what they need. Specific examples are given when describing approaches to change a math program. For example, possessing a growth mindset and believing everyone can be good at math are imperative to implementing a math program that allows all students to be successful mathematics learners. The book gives examples of common mistakes used in schoolwide math programs (e.g., timed tests). Effective approaches are described to support teachers through the process of change in schools-for example, providing time for them to share concerns and offer solutions.

I recommend this book for educators who have influence on math programs used in schools. It serves as a manual for implementing effective math programs by providing guidance on how to support teachers, make appropriate changes when needed, and achieve positive results.—Rebecca Layton, University of Tennessee-Knoxville.

#### Making Sense of Math: How to Help Every **Student Become a Mathematical Thinker** and Problem Solver

Cathy L. Seeley, 2016. 53 pp., \$12.99 paper. ISBN 978-1-4166-2242-0. Stock no. 15308; National Council of Teachers of Mathematics, copublished with ASCD and NCSM; http://www.nctm.org

Writing to encourage and support classroom teachers in creating an environment in which "making sense of mathematics" can become a reality for their students, Seeley challenges traditional beliefs on what it means to be smart in math and introduces beliefs that promote a growth mindset (Dweck 2016). Some of these beliefs include the following:

- Fluency in math should not be determined • by speed.
- Productive struggle and making mistakes are important to the learning process.
- Problems should be used as vehicles to explore learning and not as a means to arrive at a chosen destination.



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 Most important, students should expect to engage in conversation every day in math class and demand that math will make sense.

Seeley gives a well-thought-out, comprehensive list of practices that support these beliefs. For example, she presents practical suggestions on how teachers can turn unproductive struggle to productive struggle by asking the right questions, and she offers ideas to encourage students to expect and embrace errors. A reflectiondiscussion section is included for the purpose of constructing a personal to-do list. This publication contains a list of useful resources.

Even though some readers may desire more detail, the book's conciseness and organization is noteworthy. I highly recommend this book for mathematics teachers, and I would also recommend it for parents and administrators because both influence the learning process and are therefore important stakeholders in the need for such an important change in the culture of the mathematics classroom.—Joy W. Darley, Georgia Southern University–Statesboro.

#### FROM OTHER PUBLISHERS

## About Teaching Mathematics: A K–8 Resource (4th Edition)

Marilyn Burns, 2015. Grades K–8, 505 pp., \$89.95 paper. ISBN 978-1-93509-932-1. Math Solutions; http://www.mathsolutions.com

This is the fourth edition of the book that was originally published in 1992, and it still contains all the activities we know and love. However, Burns has taken her knowledge and years of experience to make an even better resource. You can now find notes in the margins, where she comments on ways to (1) improve and extend a lesson, (2) find more information, and (3) advise parents with suggestions. An "about the mathematics" icon has also been included, which elaborates on the underlying mathematics within select problems.

The book is organized into four parts:

- 1. Starting points
- 2. Problem-solving investigations
- **3.** Arithmetic
- 4. Questions teachers ask

Section one focuses on twenty-three different instructional issues and teaching practices; for example, understanding the equals sign, using word cues in solving problems, manipulatives, and the importance of mental math. The issues are framed within real classrooms and illustrate children's understanding or misconceptions about mathematical concepts.

The second section is divided across the five mathematical content areas and begins by highlighting the Common Core content and practice standards. Although activities do not explicitly state the aligned standards, the author does highlight which concepts and skills are appropriate across different grade levels.

The third section has some updates and the essential aspects of arithmetic instruction that all teachers should read. Many teachers will find the final part of the book invaluable, as it focuses on classroom management and instructional issues. This resource is a musthave for anyone who currently teaches or plans to teach mathematics to children in K–grade 8.—*Heidi J. Higgins, University of North Carolina–Wilmington, North Carolina.* 

#### Challenging Common Core Math Lessons, Grade 4

Molly Bryan Talbot, 2015. 258 pp., \$39.95 paper. ISBN 978-1-61821-412-6. Prufrock Press; http://www.prufrock.com

This activity book was written for teachers with gifted and advanced learners. The author provides twenty-four lessons arranged by standard domain: Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations–Fractions, Measurement and Data, and Geometry. Each lesson includes an opening activity to allow for exploration of a mathematical concept followed by practice problems, which include probing questions to help students dig deeper into the ideas.

One of our favorite activities is called Factor Pairs and Multiples. Students choose number

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cards (from 1–100) and record lengths and widths for all possible rectangular arrays they can make for their number. They explore which numbers make square regions and which numbers have only one

possible arrangement. They also use information from this table to color stripes on their hundred charts to show multiples; from this, they try to generalize rules to determine if a number is a multiple of another number. This particular activity includes a reproducible hundred chart and guiding questions for students.

This book has potential to be a useful resource, but I cannot recommend it at this time because it contains too many errors. The answer key has errors, such as listing 2 and 13 as two possible factors of 36 and stating that 87 is a prime number. Even worse were mistakes on the student activity pages, such as incorrect conversions: "1 kilogram = 100 grams and 1 Liter = 100 milliliters" (sic) for students to use in the exercises.—*Mary Beth Rollick, Kent State University, Kent, Ohio.* 

#### **Charlie in Fraction City**

Lynda Brennan, 2016. 57 pp., \$24.99 paper. ISBN 978 1-5152-8724-7. Math4Minors LLC; http://www.math4minors.com



Charlie in Fraction City is written for teachers as an instructional tool for elementary-school-age students in kindergarten (when concepts are first introduced) through grade 5 (review of fraction concepts). The focus of the book

is how various fractions are part of the whole unit. Visuals include the use of rectangles, both tall and wide, as well as circles and ways to divide them into fractions. The language is appropriate for second and third graders but can easily be read to younger students or used as an independent read for older students.

Accurate visual representation of fractions and examples demonstrate how fraction pieces must be equal in size and shape to equal the whole. One in-depth example shares the importance of the need to have the appropriate number of parts (5/5), even if all the parts are equal and fit together (4/4 does not fit the 5/5 = 1 unit that is displayed). Proper vocabulary is used throughout the book, and a list of talking points are provided for teachers to use. Additional supporting information offers a continuum of fractions as an overview by grade level, first to fifth, as well as examples of problems that align with the Common Core learning standards for teachers to review.

This book is pertinent to the topic benefiting students in learning and reinforcing an overview of fractions. This book would be a good addition to any classroom library, as it could be used in lessons or for students to read for enjoyment.—*Nancy Cerezo, PhD, Saint Leo University, Saint Leo, Florida.* 

#### Differentiating Instruction with Menus: Math, Grades 3–5

Laurie E. Westphal, 2016. 178 pp., \$19.95 paper. ISBN 978-1-61821-536-9. Prufrock Press; http://www.prufrock.com

This easy read introduces teachers to using menus to differentiate mathematics instruction. An extensive collection of created menus are provided and categorized by five content areas:

- Differentiating Instruction With Menus Math
- 1. Whole numbers and operations
- 2. Decimals and fractions
- **3.** Geometry
- 4. Measurement
- 5. Finances

Each menu offers a list of choices incorporating different levels of understanding from which students can select activities that best represent their learning style. For teacher convenience, standards-based learning objectives, materials lists, and suggested time frames accompany each menu.

This is a great resource for those who want to try menus but are unsure of how to start. All the supplied materials are ready to use and can assist teachers who are wanting to find new ways to differentiate—particularly for providing enrichment. The author clearly presents the benefits of student choice and includes guidelines and rubrics for each activity so that expectations and grades remain fair across varied student products.

Although many excellent tasks are included, teachers who use these menus should carefully consider the level of mathematical engagement required within menu options. In some cases,

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Developing Literate Mathematicians: A Guide for Integrating Language and Literacy Instruction into Secondary Mathematics BY WENDY WARD HOFFER

How can we integrate literacy instruction authentically into mathematics content to support mathematical understanding? Busy secondary mathematics teachers who seek to respond to the needs of

their students and the demands of the Common Core State Standards will welcome this book, which offers lively classroom examples, usable research, and specific ideas and resources. Enrich your students' understanding of mathematics by attending to reading, vocabulary, discourse, and writing through a workshop model.

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#### More Lessons Learned from Research, Volume 2: Helping All Students Understand Important Mathematics

EDITED BY EDWARD A. SILVER AND PATRICIA ANN KENNEY

#### Applying research to strengthen teaching practice and ensure students' success in mathematics

More than seventy years of research point to the importance of teaching

mathematics for understanding. Successful students actively construct understanding rather than passively receive knowledge. Implications of this fundamental lesson from research are explored in different ways through twenty-four chapters presented in this book. Chapters cover investigations of a wide range of topics, approaches, and settings, and mathematics teachers at all levels will find examples of research that are relevant to the challenges they face.

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#### DON'T MISS! More Lessons Learned from Research, Volume 1

EDITED BY EDWARD A. SILVER Helps to link classroom teachers to all that original research has to offer ©2015, Stock #14117

#### Putting Essential Understanding of Geometry and Measurement into Practice in Grades 3–5

BY KATHRYN CHVAL, JOHN LANNIN, AND DUSTY JONES KATHRYN CHVAL, VOLUME EDITOR

BARBARA J. DOUGHERTY, SERIES EDITOR

Do your students have "concept images" that limit their ideas of shapes to specific examples, oriented in particular ways? Do they confuse the size of an angle with the length of the rays in a drawing of an angle? This book demonstrates how to use multifaceted knowledge to address the big ideas and essential understandings that students must develop for success with geometry and measurement—not only in their current work, but also in higher-level mathematics and a myriad of real-world contexts.

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#### Problem Solving in All Seasons, Grades 3–5

BY KIM MARKWORTH, JENNI MCCOOL, AND JENNIFER KOSIAK

Holidays and seasonal activities offer perfect backdrops for mathematical tasks that can be related to other topics and themes in the classroom. This book delivers thirty-six appealing, real-world mathematical tasks, arranged in grade-level order, to engage young learners in problems tied to the Common Core and designed to allow children to participate in the Common Core Standards for Mathematical Practice. Each task includes a complete implementation guide, and handouts and ancillary materials can be accessed online. This is your all-in-one practical handbook for problem solving in the primary years.

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DON'T MISS! Problem Solving in All Seasons, Pre-K-Grade 2

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# ADDITIONAL NEW TITLES



Making Sense of Math: How to Help Every Student Become a Mathematical Thinker and Problem Solver

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#### On the Money: Math Activities to Build Financial Literacy in High School

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NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS Visit nctm.org/store for tables of contents and sample pages. For more information or to place an order, call **(800) 235-7566** or visit **nctm.org/store**. emphasis on learning styles seem to outweigh the mathematical value of tasks that students are asked to engage in. Also note that data analysis, probability, and algebra are underrepresented, and grade-level distinctions are not included. I recommend this teacher-friendly resource, but teachers should review and adapt menus, when appropriate, to ensure that the choices are deepening mathematical understanding and not simply filling time.—*Carolyn Mitten, University of Florida, Gainesville*.

#### **Engaging Primary Children in Mathematics**

Margaret Sangster, 2016. 194 pp., \$29.95 paper. ISBN 978-1-47258-026-9. Bloomsbury Publishing; http://www.bloomsbury.com



Author Margaret Sangster uses the first quarter of her book to lay the psychological foundation of how children in the primary grades learn mathematics. She goes into detail about the importance of scaffolding learning so that children can build on what they know and

"connect the dots." Sangster explains the science behind why this step-by-step approach is necessary. Next, she goes on to describe how traditional methods of teaching rely too much on procedures and memorization. Instead, she offers a procedural understanding of mathematics, using the levels of thinking made famous by Bloom to show how students who have a firm grasp of how and why a concept works understand it on a much deeper level than those who simply memorize steps in a process.

As the book progresses, Sangster discusses curriculum issues and specific problem areas for math students, such as solving word problems. When she explains each topic, she leans heavily on the research of respected experts in psychology, education, and sociology. She does not waste time delving too much into the details of quoted studies, but connects their relevance and continues with the topic at hand. Not only are the issues well-described, but Sangster also gives possible solutions and best practices for each scenario. This book was written with the experienced math teacher in mind, to further their understanding of this complex subject and improve their teaching in various dimensions.-Matthew D. Hoffman, Pocomoke Middle School, Pocomoke, Maryland.

#### **Five Speckled Frogs**

Steven Anderson, 2016. 24 pp., \$7.95 cloth. ISBN 978-1-63290-384-6. Cantata Learning; http://www.cantatalearning.com

One in a series of books that focus on combining

literature with music to help support young children's understanding of different content, this book and the accompanying CD present a rendition of the nursery rhyme "Five Speckled Frogs," in which frogs jump, one by one, from a log into a pool where it is "nice and cool." The story begins by describ-



ing frogs' tongues and how they use them to catch bugs to eat. It continues by telling readers to count down from five as each of the frogs jump from a log in an attempt to capture a dragonfly. Unlike the original nursery rhyme, which ends when the last frog jumps off the log, this one has the frogs jump back, one by one, until five of them are back on the log.

The pictures and text do a nice job of demonstrating the successive subtraction pattern of subtracting by one until there are no longer any frogs on the log. The author then prompts readers to add the frogs back onto the log one at a time. Unlike the successive subtraction during the first half of the story, which emphasizes the number remaining on the log after each frog jumps off, this pattern doesn't continue as the frogs jump back on-the fourth and fifth frogs are added simultaneously before referring back to the total. Some illustrations are a bit difficult for young children to follow; the act of jumping off the log and the starting or ending numbers are often happening simultaneously, which makes it difficult for children to keep track. However, the illustrations are appealing, the music is engaging, and children will ask to hear them over and over again.-Heidi J. Higgins, University of North Carolina–Wilmington.

## Parents Matter: Supporting Your Child with Math in Grades K–8

Regina M. Mistretta, 2016. 128 pp., \$25.00 paper. Foreword by Marta Civil. ISBN 978-1-4758-2185-7. Rowman and Littlefield; http://www.rowman.com

Every teacher has heard the phrases "How can I help my child with math?" and the infamous "That's not how I learned it." Mistretta's book is intended as a "parent's guidebook." The first two



chapters offer recommendations for parents for creating a positive home learning environment, specific questions to ask children and teachers, and ways to support shifts in math learning and mathematical practices. Each of the three subsequent chapters provide a detailed description of the big ideas throughout the grade levels K–2, 3–5, and 6–8. Each offers a "Classroom Scene" and "Parents Can" section, providing an inside look at sample classroom activities and suggestions for supporting these at home. Mistretta outlines concrete minilessons and suggests specific online resources to help parents carry out the suggested activities.

Although it is intended for parents, the text complexity and professional jargon make this book more appropriate for an audience of educators. Another drawback is with the sampling of activities: the "scenes" omit many strategies with which parents often struggle. Two essential tools that have been somewhat overlooked in this book are the number line and the openarray models. Finally, the content chapters contain errors (e.g., the author mixes up the dividend and divisor when explaining the parts of a division problem).

As a math coach, I was excited by the idea of this book; and although it has many positives, I have too many reservations to recommend it to typical parents.—*Dawn Campbell, Orchard Hill School, South Windsor, Connecticut.* 

#### 2 + 2: 4 Flamingos at the Zoo

Celia Baron, 2016. 24 pp., \$6.99 paper. ISBN 978-1-4602-7117-9. Friesen Press; http://www.friesenpress.com



With 2 + 2: 4 Flamingos at the Zoo, Celia Baron provides an entertaining look at the early elementary school topic of addition doubles. Learning doubles' sums is a helpful way to begin to develop automaticity with addition number facts. A search on the Internet produces many examples of chants, songs, and

games with this intent. I was initially confused that the concept of doubles was introduced without creating equations (e.g., 1 + 1 = 2, or 2 + 2 equals 4). However, I quickly realized the usual rhyming pattern (two rhyming lines similar in length) has been replaced by one short line followed by a rhyming second line: "1 + 1, 2 tigers in the sun." The result is a memorable cadence that young children will quickly recognize and make their own. The illustrations are engaging and colorful, and the situations pictured present many opportunities for dialogue. This book would make a wonderful gift for young mathematicians just beginning to explore number relationships as well as a useful addition to a classroom library.—*Gail Englert, Norfolk Public Schools (retired), Norfolk, Virginia.* 

#### Which One Doesn't Belong? A Shapes Book and Teacher's Guide

Christopher Danielson, 2016. 36 pp., \$33.33 cloth. ISBN 978- 6-2531-080-4. Stenhouse; http://www.stenhouse.com

I recieved Danielson's shapes book *Which One Doesn't Belong (WODB)* with anticipation. I had been noticing Twitter activity on the math twitter blogosphere around the hashtag #wodb, and I was curious. The picture book includes a teachers' guide, which I found valuable, especially the



chapter on how to use the book in the classroom. It also explains the progression of a student's geometry thinking, gives tips and examples of how to guide conversations, and defines some geometry terms to give rigor to my own knowledge. I referred back to the teachers' guide many times when using the book in classroom settings.

Danielson writes, "I made this book to spark conversations, thinking and wonder" (p. 36). He has definitely succeeded. I enjoyed using this book to facilitate conversations with first and fourth graders. Students were engaged and were eager to communicate their ideas and listen to others. I noticed improvement in their ability to craft mathematical arguments in support of their choices. In the end, the fourth graders composed their own set of shapes to challenge others with "which one doesn't belong." I also shared the book with colleagues and even brought it out at a family party.

This bold-color shapes book is, as the author had hoped, "a resource that can make a meaningful contribution to geometry instruction" (p. 16) but can also reside in an elementary school library. It allows for meaningful conversations, unanswered questions, and deep dives into the subtle and complex similarities and differences between shapes.—*Laurel Pollard, Hanover Street School, Lebanon, New Hampshire.* 



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