

From pre-K puzzles to PLCs at work

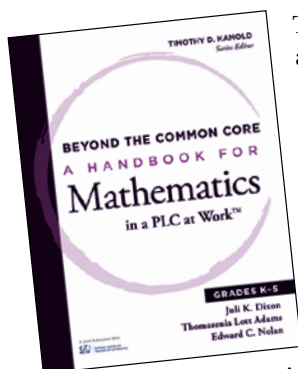
Books

From NCTM

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Beyond the Common Core: A Handbook for Mathematics in a PLC at Work, Grades K–5

Juli K. Dixon, Thomasenia Lott Adams, and Edward C. Nolan, 2014. 184 pp., \$29.95 cloth. ISBN 978 1 936763 46 7. Stock no.14967. Co-published by National Council of Teachers of Mathematics and Solution Tree; <http://www.nctm.org>.



This handbook offers a roadmap for professional learning communities (PLCs) to effectively plan for, implement, and reflect on units of mathematics instruction. The authors state that the elementary classroom teacher is “the most important ingredient to student success.” By naming and describing ten high-leverage team actions (HLTAs), the authors offer a framework for teachers to collaboratively examine units of mathematical instruction within their PLCs.

For example, in HLTA 4, teachers consider learning outcomes and scoring rubrics for given grade-level tasks. The authors encourage this type of assessment as an “inequity eraser,” as it assures consistent feedback dependent only on students’ work. Each HLTA concludes

with “Your Team’s Progress” and PLCs’ self-assessment using a rubric. As the authors note, “It matters less which stage your team is at and more that you and your team members are committed to working together.” These rubrics are among several printables in the handbook, accessible at the website go.solution-tree.com/mathematicsatwork. Although the free online reproducible resources require creating an account and logging in, the website is easy to navigate and well-organized.

The HLTA framework breaks complex work into manageable chunks and the handbook’s specific, grade-level examples make the framework accessible and applicable to elementary school teachers. I would not hesitate to recommend this text to elementary school teachers who are interested in improving their mathematics instruction.—Christine Taylor, North Carolina State University–Raleigh.

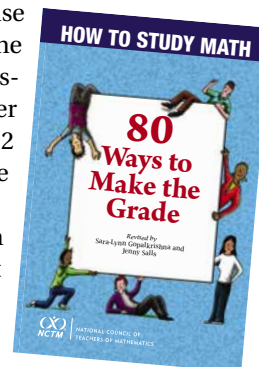
How To Study Math:

80 Ways to Make the Grade

Sara Lynn Golpalkrishna and Jenny Salls, 2014. Grades 6–8, 70 pp., \$9.95 paper. ISBN 978-0-87353-686-8. Stock no.14109. National Council of Teachers of Mathematics; <http://www.nctm.org>.

The purpose of this text is to inform readers of the different strategies that teachers use to instruct students in mathematics. The book also describes how to be successful in the mathematics classroom. After reading the book, I think grade 6–12 students are an appropriate audience to target.

The authors are thorough in describing in detail the different components a classroom could contain, such as activities, instructional methods, and learning styles. The tips that they include in the text boxes are good for students who are skimming the text.



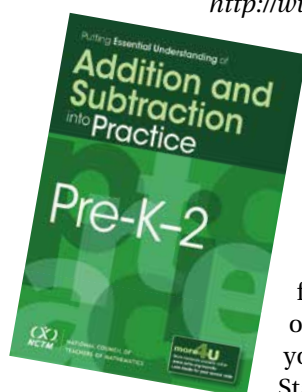
I could find no weaknesses with the content of the material nor how it is presented to students.

Because this book is for students, I asked mine if they would like to read it to learn how to get better grades in math class. Overwhelmingly, students said they would not volunteer to read the book.

How To Study Math: 80 Ways to Make the Grade might be a good book to publish; however, if my students' reaction is a gauge, I would have to say that it may not do as well in print as its merits suggest. Fortunately, the book targets teachers and parents who can get it into the hands of students who are struggling in math.—*Theresa Fox, Goshen County School District, Torrington, Wyoming.*

Putting Essential Understanding of Addition and Subtraction into Practice, Pre-K–Grade 2

Barbara Dougherty, Karen Karp, Janet Caldwell, and Beth Kobett, 2014. Foreword by Linda M. Gojak. 152 pp., \$36.95 paper. ISBN 978-0-87353-730-8. Stock no. 14540. National Council of Teachers of Mathematics; <http://www.nctm.org>.



The authors expertly weave the critical concepts of addition and subtraction from NCTM's Essential Understanding series (2010) and the primary grade expectations for Number and Operations in Base Ten from the Common Core State Standards for Mathematics (2010) into the locus of daily classroom interactions with young students, the Common Core's Standards for Mathematical Practice, and formative assessment of student understanding.

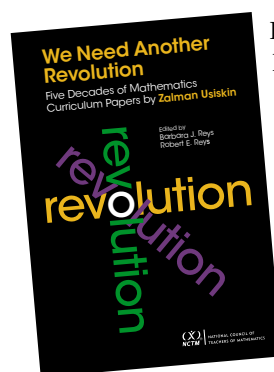
Grounding their research-based discussion in the development of counting, place value, and number sense, the authors trace the cognitive evolution of addition and subtraction through the development of part-part-whole relationships, the importance of language and context to deepen students' understanding, the mastery of basic facts, and the development of meaningful strategies for multidigit addition and subtraction. This pedagogical content knowledge provides teachers with a foundation for enhancing young students' mathematical futures. Each chapter integrates and interrelates

these operations and supplies meaningful illustrations of key mathematical ideas through authentic student work samples, poignant self-reflection questions that challenge teacher-centered practice, and practitioner-friendly explanations that develop teachers' understanding of students' mathematical thinking. Additional readings, classroom-ready rich tasks, quality online resources, and appropriate children's literature titles are provided within appendixes to support teachers and students in pursuit of conceptual understanding and procedural fluency related to addition and subtraction.

As we shift our thinking about instruction in early childhood mathematics to mirror the evolving research base, expectations of new standards, and next-generation assessments, this book thoughtfully illustrates how teachers, mathematics coaches, intervention specialists, and administrators can make student-centered mathematics instruction a reality in the primary grades.—*Timothy McKenry, Co-Director, Mathematics Coaching Program, The Ohio State University–Columbus.*

We Need Another Revolution: Five Decades of Mathematics Curriculum Papers by Zalman Usiskin

Barbara J. Reys and Robert E. Reys, ed. 2014. Foreword by Jeremy Kilpatrick. Pre-K–Grade 12, 446 pp., \$62.95 paper. ISBN 978-0-87353-760-5. Stock no. 14771. National Council of Teachers of Mathematics; <http://www.nctm.org>.



Editors Barbara and Bob Reys bring together a collection of Usiskin's papers and talks focused on mathematics curriculum. Although his work is scholarly, it is also accessibly written, and many of the pieces are quite short (the shortest is

under two pages), which allows for easy entry into the collection.

Usiskin's work has focused primarily on secondary students and curricula; however, many pieces in this collection speak to issues that span pre-K–grade 12. In addition, much of

Usiskin's work remains timely despite having been published over the past five decades. Readers may recognize the debates and challenges of today playing out in Usiskin's earlier work, especially around standards and what should (and should not) be included in the school curriculum. This can provide a valuable historical perspective on debates surrounding the Common Core. The pieces I found most interesting, and most likely to be of value for elementary school mathematics educators, were those focused on mathematics for all, debates about standards and curriculum, and myths about the declining quality of mathematics education. These are concentrated in the first half of the book (sections 1 and 2), but there are pieces relevant to all grades throughout.

This book could be used as part of a school teachers' reading group in which they select chapters of interest. It may also be particularly appropriate for those considering pursu-

ing a postgraduate degree in mathematics education, especially with a focus on curriculum.—*Mathew D. Felton-Koestler, Ohio University–Athens.*

From other publishers

Number Fun:

Making Numbers with Your Body

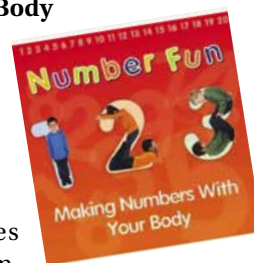
Isabel Thomas, 2015.

24 pp., \$25.32 cloth.

ISBN 978-1-4846-0409-0.

Capstone Publishers;

<http://www.capstonepub.com>.



This simple book engages children in actively forming the numerals 1–20. As children read, they manipulate their bodies to create the curved and straight positions needed to replicate the formation of numerals. To successfully form many of the numerals, children must



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work cooperatively with others. This requires a great deal of verbal communication cooperation as children coordinate their bodies to move together. In conjunction with presenting the “body” form of the numeral, the author represents the associated quantity with familiar objects and also highlights each numeral’s position on the number line. Although simplistically presented, a great deal of mathematical content is available within the book’s context.

When preservice teachers who were enrolled in a university course—focused on NCTM pre-K–grade 2 Standards—identified strengths and weaknesses of the book, the majority agreed that children would like to be involved in this type of active learning. They also agreed that having the objects to count on the same page as the “body form” of the numeral would help in making the connection between the numeral and the quantity. Another strength that preservice teachers identified was the teacher-parent suggestions in the back of the book.

The weaknesses that this group of preservice teachers identified, however, were inconsistent. Some reviewers thought the “body formation” was not visually apparent when children formed the numeral (such as the numeral 4). Others thought that the “everyday pictures” should not be repeated (such as the butterflies and balloons) because so many choices of items are available that repetition is unnecessary. Additionally, some reviewers commented that the children depicted in the “body numerals” in the book should be the same size (not sized to fit the space), especially if the children are creating a two-digit numeral. One of the preservice teachers presented the book to her daughter’s preschool class. During the activity, a preschooler commented, “We do not have little people in our class, so we can’t make that number.” He was referring to the numeral 18. He thought that numeral 1 was fine but that numeral 8 was made with “little people.”

The main purpose of the book is to actively introduce young children to the lines and curves that make up numerals and the quantities associated with the numerals. Overall, the book does a fine job meeting its objective. It provides teachers and parents of young children various ways to integrate other mathematical concepts while reading this book. Many of the ideas suggested are active in nature and reinforce the

physical attributes of mathematical learning. *Number Fun: Making Numbers with Your Body* is definitely a fun book to read. Whether at home or in the classroom, children will be actively involved in learning.—Cindy Olivas, University of La Verne, La Puente, California.

Sir Cumference and the Off-the-Charts Dessert
Cincy Neuschwander, 2013. 32 pp., \$16.95 cloth. ISBN 978-1-57091-198-9. Charlesbridge Publishing; <http://www.charlesbridge.com>.



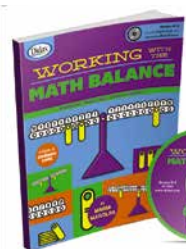
Sir Cumference and the Off-the-Charts Dessert is one of eight books in Neuschwander’s series of mathematical adventures. This time, the medieval-style characters are embroiled in a

bake-off of statistical proportions to determine this year’s Harvest Treat for the upcoming Harvest Faire. Pia from Chartres offers the best pies in town, and Bart Graf makes an assortment of cookies, but how to determine a winner? Ultimately, the pie graph and bar graph that are constructed, showing favorites among the pies and cookies respectively, make the selection obvious. Geared for grades 4–6, most of Neuschwander’s previous books help introduce and reinforce geometry concepts. In this book, she does the same for data analysis. Filled with delicious puns, the text is engaging and accurate; Geehan’s detailed illustrations enhance the mathematical information presented and promote a sense of fun. Fourth graders will think they themselves are unlocking the secret to the puns of “Pia from Chartres” and “Lady Di of Ameter,” whereas older students will simply groan. In either case, the mathematical concepts will most likely be remembered.

The author misses one teaching opportunity in her otherwise carefully constructed story: Clearly, both a bar and a circle graph can show the “favorite” option in the polling, but the book falls short of distinguishing the different purposes (comparing quantities as opposed to comparing parts to the whole) of these two “competing” displays of data.—Carola Drosdeck, Shaker Heights City School (retired), Shaker Heights, Ohio.

Working with the Math Balance

Maria Marolda, 2013. K–Grade 6, 74 pp., \$16.95 paper. ISBN 978-1-58324-424-1. Didax; <http://www.didax.com>.



This resource is for students and teachers in K–grade 6 who would like to use the math balance manipulative. It offers students the opportunity to explore arithmetic and algebraic relationships. A variety of problems

provide for multiple grade levels, and using the math balance allows kinesthetic learners the opportunity to interact with the manipulative. The book presents illustrations for students who have no prior experience with using the balance. They can use their personal balance to draw an example of the balance in the book or compare their balance to some of the illustrations. An accompanying CD offers an interactive math balance along with a digital copy of the book. What is also nice about *Working with the Math Balance* is the level of scaffolding that it provides for students when a concept is first introduced. For example, students have two samples for solving 3×4 using the balance. They are shown a pictorial representation of how to solve, then they determine which strategy works best for them.

Although I see how this book provides opportunities for students to experience understanding of the equal sign and to begin thinking algebraically, I would have liked to see more questions that students could answer beyond computing. The book does not offer a lot of opportunities for students to explain their thinking and for teachers to determine the

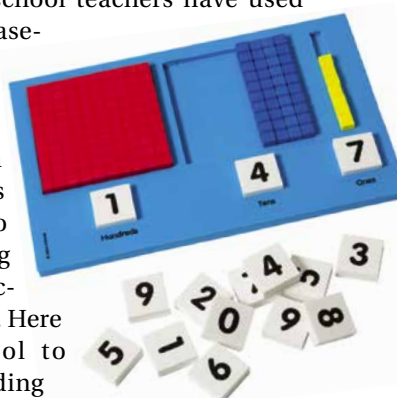
level of understanding students have beyond the computation. The teacher would have to supply follow-up for students to talk about what they have done and how they determined their answers. Beyond those areas, this would be a great additional resource for teachers.—*Kimberly Kirk, Montgomery County Public Schools, Rockville, Maryland.*

Etcetera

Base-Ten Place-Value Frame

Steven Lanza, 2014. K–Grade 2, \$8.95. Code 211937 Didax; <http://www.didax.com>.

Most elementary school teachers have used the ever-famous base-ten blocks when teaching concepts involving place value, to aid in teaching concepts from unitizing to understanding place value, to fractions and decimals. Here is a concrete tool to develop understanding of these concepts. Students can use one-centimeter base-ten blocks already in their classrooms to construct and deconstruct ones, tens, and hundreds.



I have the benefit of being able to work with K–grade 5 students, so I tried this tool; it was a huge success at every level. The primary grade students used it as they began unitizing 10 and 100. The numerals that can be placed under each section of the frame helped students see the relationship between those numerals and the total number of cubes. I was also able to reinforce equivalent combinations (13 tens and 7 ones = 1 hundred, 3 tens, and 7 ones, or 137 ones), which was very powerful with students! Finally, upper elementary students used this tool to help them make sense of the regrouping strategy as they moved toward using the standard addition and subtraction algorithms.

I could definitely see this tool being used in classrooms by students in all elementary grades.—*Dawn Campbell, Orchard Hill Elementary School, South Windsor, Connecticut.*

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