

window on resources

book, product, & software reviews

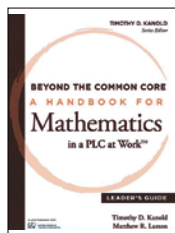
BOOKS AND PRODUCTS

FROM NCTM

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Beyond the Common Core: A Handbook for Mathematics in a PLC at Work, Leader's Guide

Timothy D. Kanold and Matthew R. Larson, 2015. 224 pp., \$24.95 paper. ISBN 978-1-936763-62-7. Stock no. 14970. Solution Tree, co-published with National Council of Teachers of Mathematics; <http://www.nctm.org>.



Beyond the Common Core is written primarily for mathematics teachers, math specialists, instructional coaches, and department

coordinators. It is designed to provide users with the guidance, support, and tools necessary to help lead collaborative teams through the five stages of the Professional Learning Community (PLC) teaching-assessing-learning cycle to achieve higher levels of student learning and performance in mathematics.

The handbook consists of three chapters that fit the natural rhythm of lesson planning: before, during, and after. It offers many tools,

strategies, and tips that will allow a teacher leader to help the PLC focus on the essential learning standards, the assessment instruments and tasks used, and the formative assessment processes used for intervention as well as for extension and enrichment. The goal of the actions provided in the book is to eliminate inequities, inconsistencies, and lack of coherence from one classroom to another, so that the focus is on teachers' expectations, instructional practices, assessment practices, and responses to student demonstrated learning.

The book offers many easy-to-use reproducible documents, several of which would be helpful for not only PLCs in their planning of units but also individual classroom teachers. For this reason, I recommend this book to teacher leaders and all others who are looking to elevate mathematics teaching and learning.

Kristin White

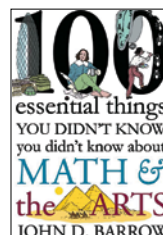
Washington International School
Washington, D.C.

FROM OTHER PUBLISHERS

100 Essential Things You Didn't Know You Didn't Know about Math and the Arts

John D. Barrow, 2015. 320 pp., \$26.95 cloth. ISBN 978-0-393-24655-1. W. W. Norton & Company; <http://www.nortonandcompany.com>.

The offering *100 Essential Things* is a delightful book crammed full of interesting connections between math and art. Author John D. Barrow explains that one way of thinking about math-



ematics is as "the catalogue of all possible patterns." With this broad description of mathematics, he connects math to all types of art.

These snapshots of 100 essential things touch on familiar topics, such as the golden ratio, Fibonacci numbers, and fractals. Barrow also looks at some unusual places where math and art connections can be found. He explores how many individuals are needed to guard an art gallery; why everyone sounds good singing in the shower; Shakespeare's vocabulary (numbering 66,534 words); Albrecht Dürer's picture *Melencolia I* and its magic square; the "ski-jump ramp" enabling heavier aircraft to take off from shorter runways on an aircraft carrier; how Salvador Dali represented the fourth dimension in his painting, *Corpus Hypercubus*; where to stand to look at a statue; how to reduce the amount of light coming in a window without using drapes; why El Greco painted humans with unusual elongation; and "how lacing patterns have played an important historical role in dresses and bodices."

The author lures you into further research by presenting these 100 fascinating and fun tidbits connecting mathematics and the arts. I would encourage middle school and high school teachers to browse through the book and enjoy the unusual places where mathematics is found.

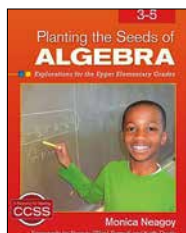
Ann Hanson

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Chicago, Illinois

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Planting the Seeds of Algebra, 3–5: Explorations for the Upper Elementary Grades

Monica Neagoy, 2015. Foreword by Francis (Skip) Fennell and Keith Devlin, 248 pp., \$38.95 paper. ISBN 978-1-4129-9661-7. Corwin, a Sage Company; <http://www.corwin.com>.



In *Planting the Seeds of Algebra*, Monica Neagoy explores four areas of elementary mathematics that are essential for developing the foundation for algebraic reasoning. She provides actual lessons that have been taught in elementary classrooms in the areas of geometry, patterns and functions, multiplication and the distributive property, and fractions. She then makes connections between elementary mathematics and secondary algebra. She concludes each exploration with suggestions for extending the lesson beyond the scope of the text.

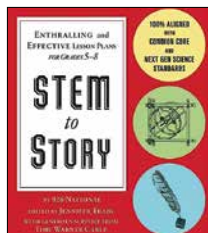
This book does an excellent job of presenting the four classroom lessons, including student questions and responses. The appendix provides the worksheets used for each lesson. Although this book is meant for the lower middle grades, the multiplication and distributive property chapters provide additional reinforcement to higher middle-grades students who still struggle in those areas.

Overall, I found the book to be interesting and insightful. Any preservice teacher or new in-service teacher would find the detail of the lessons useful and able to help generate ideas for planning lessons about other concepts.

Greg Soster
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Littleton, New Hampshire

STEM to Story: Enthralling and Effective Lesson Plans for Grades 5–8

Jennifer Traig, ed., 2015. 336 pp., \$24.95 paper. ISBN 978-1-119-00101-0. Jossey-Bass, a Wiley Brand; <http://www.josseybass.com>.



This offering aims to connect STEM with the art of writing. In so doing, this book provides teachers, facilitators, and others who work with students an array of complete lessons to engage students through hands-on activities as they explore STEM disciplines. Although non-interdisciplinary, the lessons could be adapted to fit the needs of the other three disciplines and with effort were placed in those areas by the user.

The book's strengths include that it is a complete resource for the user; no searching for other resources is necessary. Background information and content that would assist the user in understanding key lesson attributes are also provided. It is grade appropriate and correlates with the Common Core State Standards for Mathematics. Accompanying items include PDF downloads and PowerPoint® presentations.

Although the organization is detailed, a one-page lesson plan would have helped to provide an overview. Resource links are very long to type into the web browser. Providing shorter links or a webpage that has the accessible links would have made the text more reader-friendly.

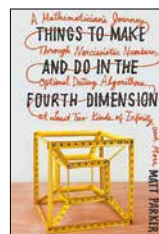
The students loved all the lessons and were thrilled to do the hands-on activities and write about their hypotheses and results. They also enjoyed creating imaginary scenarios. They were enthusiastic about what they were learning from the book.

I recommend this book, with only a few reservations.

Natalie Holliman
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Things to Make and Do in the Fourth Dimension: A Mathematician's Journey through Narcissistic Numbers, Optimal Dating Algorithms, at Least Two Kinds of Infinity, and More

Matt Parker, 2014. 464 pp., \$28.00 cloth. ISBN 978-0-374-27565-5. Farrar, Straus, Giroux Books; <http://www.fsgbooks.com>.



Matt Parker includes historical mathematical facts, tricks, puzzles, jokes, and games to show that mathematics is “not boring.” He says that most students are unexcited about mathematics. Acknowledging the mathematics education reform journey would have painted a fairer picture.

The book appeals to K–grade 12 students as well as college students and adults. In the “Can You Digit?” chapter, Parker discusses the 37 trick, which involves choosing a digit, writing it three times, and dividing the resulting number by the sum of the digits. The result is always 37.

Parker sometimes covers too many ideas instead of focusing on a few in depth. For example, he compares the 37 trick with the Roman, Babylonian, and Maya numeration systems but omits a comparison of these systems with the Hindu-Arabic system. In the “Number Mash-ups” chapter, it may have been more powerful to delve into one or two functions in greater detail instead of discussing four functions. Also, in exploring the Fibonacci sequence, Parker omits the Rabbit

problem, which generates the sequence. He could also have said more about the golden ratio and the generation of Mersenne numbers.

The book inspires one to want to learn more mathematics or simply revisit mathematics. For example, in “Number Mash-Ups,” Parker explains the limit of a sum by connecting with a mathematics joke. He also discusses how a problem in a PlayStation®4 video game was caused by rounding rules. Parker’s historical references, such as the growth of mathematics between what the Greeks accomplished and the sixteenth century, are attractive. Teachers could use the book to enhance students’ understanding and views, in general, about mathematics.

*Janet St. Clair
Alabama State University
Montgomery, Alabama*

answers to palette

(Continued from pp. 140–141)

1. \$0.55 and \$0.375, respectively
2. About 57%
3. 4,687.5 mi.²
4. About 303%
5. .51
6. The areas in order of magnitude are
 $\frac{9\pi}{8}$, $\frac{16\pi}{8}$, and $\frac{25\pi}{8}$.
7. 35 of the 3-point questions; 15 of the 8-point questions
8. \$36.98
9. \$176.56
10. 7
11. 2550
12. 15.75 minutes
13. .5
14. 250
15. The first of the two (the fraction with a) is larger.
16. Squares are always nonnegative, so $(x - y)^2 \geq 0$.

The sum of the areas of the blue and the red semicircle equal the area of the purple semicircle.



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