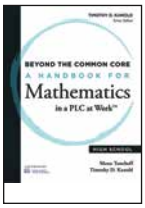
FOR YOUR information

FROM NCTM

Beyond the Common Core: A Handbook for Mathematics in a PLC at Work, High School, Mona Toncheff; Timothy D. Kanold, series ed., 2014. 208 pp., $29.95 paper. ISBN 978-1-936763-50-4. Stock no. 14969. Solution Tree Press; co-published with National Council of Teachers of Mathematics. www.nctm.org.



Beyond the Common Core is intended for high school teachers who work with colleagues to plan instruction and assessment. It provides an outline for planning units with a professional learning community (PLC). Each step is broken down with charts and guiding questions to work through as a team.

The three chapters relate to planning before, during, and after a unit. The idea is that teachers will be meeting with colleagues regularly to plan, assess, and reflect on the success of the instructional unit. The specifics of what to do are referred to as high-leverage team actions.

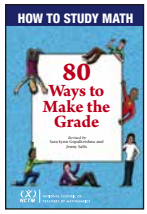
This book is well organized and easy to follow. The charts and guiding questions are well thought out and would be helpful as a guide in the planning process. The process is thorough but time-consuming. Few planners would have time to follow the steps as thoroughly as presented. Since at any given moment, PLC team members are reflecting on a previous unit, teaching a unit, and planning an upcoming unit, each PLC meeting would consist of filling out multiple charts. I teach several courses and have to meet with different sets of colleagues to plan and create materials; as result, time is a commodity.

Prices of software, books, and materials are subject to change. Consult the suppliers for the current prices. The comments reflect the reviewers' opinions and do not imply endorsement by the National Council of Teachers of Mathematics.

As I plan and teach upcoming units, I will be using the high-leverage team actions presented here. I will also share this book with colleagues and use it as a guide when working together during the next school year.

—Emily Mazur
Strongsville City Schools
Strongsville, OH

How to Study Math: 80 Ways to Make the Grade, Sara-Lynn Gopalkrishna and Jenny Salls, rev. ed., 2014. Grades 6–8, 70 pp., $9.95 paper. ISBN 978-0-87353-686-8. Stock no. 14109. National Council of Teachers of Mathematics; www.nctm.org.



How to Study Math is an easy-to-read guidebook for middle school students who are learning good study strategies. Its purpose is to share specific ideas with students as they transition from the lower grades into a more self-sufficient state. Each chapter addresses a specific topic, including reading course syllabi, using class time effectively, note-taking strategies, homework, studying for quizzes and tests, and test-taking strategies.

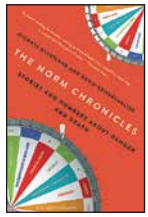
The book's conversational style makes the topics approachable for students. Main ideas are presented in comics, and key strategies and tips are highlighted in "help" boxes. The authors present topics from students' point of view—for example, homework—and address their questions (What's the point?). This chapter describes how to complete homework successfully and why.

This would be a great resource to share with students. First-year teachers could also benefit from reading this book; they could anticipate how to guide students in learning these helpful strategies.

—Rachael Gorsuch
Teays Valley High School
Ashville, OH

FROM OTHER PUBLISHERS

The Norm Chronicles: Stories and Numbers about Danger and Death, Michael Blastland and David Spiegelhalter, 2014. 362 pp., $19.99 paper. ISBN 978-0-465-08570-5. Basic Books; www.basicbooks.com.



Norm carefully weighs the risks in every situation; Prudence avoids danger whenever possible; and the Kevlin brothers relish taking risks. Using these characters to personify different attitudes toward danger and death, the authors discuss the risks of engaging in various activities ranging from the extreme (e.g., drugs and extreme sports) to the mundane (e.g., coincidence and transportation).

The authors use the "micromort" to compare the immediate risk of various activities. An average individual experiences a daily risk of a fatal accident of 1 micromort. Engaging in certain activities increases the number of micromorts a person exposes himself to in a day, including driving 250 miles in a car (1 extra micromort), driving 25 miles on a motorcycle (4 extra micromorts), running a marathon, or skydiving (both 7 extra micromorts).

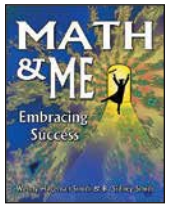
Using micromorts, "microlives" (a statistic examining the long-term risks of certain activities), and other statistics, the authors present a well-researched account of the dangers of various activities, examining surprising probabilities and statistics in a way an average reader can understand. Although not intended for classroom use, certain chapters would be of great interest to high school or college statistics students.

The authors do an excellent job of illuminating the risk of various activities. I would recommend this book to probability and statistics teachers as well as to anyone interested in learning more

about numbers related to danger and death.

—Teo Paoletti
University of Georgia
Athens, GA

Math and Me: Embracing Success, Wendy Hageman Smith and B. Sidney Smith, 2014. 90 pp., $9.95 paper. ISBN 978-0-9636847--3-8. Platonic Realms; www.PlatonicRealms.com.



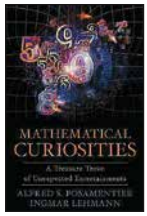
This book examines the use of productive disposition, a mathematical thinking strand based on the affectual habits of mind that are often overlooked when teaching mathematics because of too much concentration on contents. It is intended for college students as an introductory piece before the main mathematics course topics or as a supplementary reading material.

Math and Me is chronologically ordered by chapter to achieve its purpose. Discussing the whys of studying mathematics and the mathematics-related careers in chapter 1 is good; however, for those wanting to become K–12 mathematics teachers, seeing that teaching is not one of the high-paying jobs mentioned is less encouraging. Dispelling math anxiety and myths in chapters 2 and 3 allows students to assess their own feelings and attitudes about mathematics and their preparedness to pursue this area of study and a related career. Suggesting strategies for success in chapter 4 exposes students to problem solving and communication processes that are consistent with the process standards in both Common Core and other state mathematics curricula. Students' future in math, the focus of chapter 5, advises students what possible mathematics courses to take that will lead them to their dream careers.

I have used *Math and Me* in supporting new mathematics teachers. I recommend this book for college use and even in centers that offer Teaching Alternative Certification Programs.

—Reynaldo L. Duran
Region 18 Educational Service Center
Midland, TX

Mathematical Curiosities: A Treasure Trove of Unexpected Entertainments Alfred S. Posamentier and Ingmar Lehmann, 2014. 382 pp., $19.95 paper. ISBN 978-1-61614-931-4. Prometheus Books; www.prometheusbooks.com.



Mathematical Curiosities assumes no prior knowledge of mathematics, only curiosity about the beauty of this science; it views mathematics as a creative activity. Posamentier and Lehmann explain mathematics ideas clearly and intuitively, with insight, well-placed historical references, and brilliant illustrations. Nonroutine math tasks and ideas are presented that require problem solving and critical thinking.

Strands from every age and culture—from the Japanese Sangaku puzzles, to ancient Greece and the golden ratio, the Babylonians, Russian peasants' multiplication, and Kepler's conjecture—are woven into a fascinating mathematical journey. This book's focus is on simplest concepts, numbers, and shapes and is intended for the general audience, for both learners and teachers, for both casual and experienced mathematicians.

The authors present a subject and then provide alternative viewpoints. In chapter 4, "Mean Curiosities," they compared arithmetic, geometric, and harmonic means in a right triangle, using a rectangle, a hyperbola, and a trapezoid. I learned something from every page.

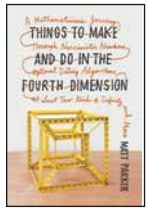
Posamentier and Lehmann have produced yet another wonderful book, an incredibly rich collection of curiosities that will nurture an appreciation of the richness and unexpected depth of simple, elementary mathematics concepts.

—Kyriakos Kypriotakis
Southwestern Oregon Community College
Coos Bay, OR

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; www.fsgbooks.com.

Things to Make and Do in the Fourth Dimension immediately captivates readers with number representations in different bases using finger positions—leaning on the absurd but understandable. The author conveys his curiosity of mathematics by posing both numerical and visual patterns that demonstrate repeated reasoning. Demonstrations of cutting pizza or a cube cake into a variety of unexpectedly equal pieces are a delight.

Topics range from base systems; number puzzles; shapes in two, three, and four dimensions; and patterns about those shapes, including knot theory, topology, and algorithmic thinking. The book is full of ideas and extensions to problems but needs to be read slowly, with pencil, paper, and mathematical tools at the ready. As a resource for teachers, it contains a buffet of hands-on activities, including geometric constructions performed with compass and straightedge, folding paper to trisect an angle or create a pentagon knot, and using straws to build three-dimensional models of polyhedra and four-dimensional cubes.



One of the most interesting models is a "wobbler," two circles slotted together that can wobble across the table. Mathematically, the length of the slot is related to its ability to wobble. The author proceeds on a tangent discussing different types of shapes that can roll.

These unexpected and whimsical diversions, filled with motivational materials ready to excite students and teachers, especially encourage outside-the-box thinking. The companion website delves deeper into topics such as the four- and five-dimensional Rubik's cube and Herschel enneahedron nets.

With history interwoven throughout and an emphasis on furthering mathematical knowledge using the firepower of the computer, Parker integrates Mersenne primes and computer security. Topics are related to art, science, dating, movement, computers, magic, mystery, and mathematics.

You need to read this book!

—Vivian La Ferla
Rhode Island College
Providence, RI