

What Is Mathematics An Elementary Approach To Ideas And Methods Oxford Paperbacks

What is Mathematics?

Teaching Elementary Mathematics to Struggling Learners
 The Essence of Mathematics Through Elementary Problems
 Mathematics for Elementary Teachers
 Mathematics for Elementary Teachers: A Conceptual Approach
 MATHEMATICS FOR ELEMENTARY TEACHERS. (PRODUCT ID 23864410).
 Fundamentals of Elementary Mathematics
 A History of Elementary Mathematics
 Essentials of Elementary School Mathematics
 Math Circles for Elementary School Students
 Concept-Based Mathematics
 Mathematics in the Primary School
 Mathematics for Elementary Teachers with Activities, Books a la Carte Edition
 The Five Practices in Practice [Elementary]
 The Knot Book

What is Mathematics?

Mathematics for Human Flourishing
 A Problem Solving Approach to Mathematics for Elementary School Teachers
 5 Principles of the Modern Mathematics Classroom
 Mathematics for Elementary School Teachers, International Edition
 A Problem Solving Approach to Mathematics for Elementary School Teachers
 Visible Learning for Mathematics, Grades K-12
 Understanding Numbers in Elementary School Mathematics
 Mathematics for Elementary Teachers
 Mathematics Education
 Mathematics in the Primary School
 Elementary School Mathematics for Parents and Teachers
 Mathematics for Elementary Teachers
 Vision in Elementary Mathematics
 The 'Resource' Approach to Mathematics Education
 Knowing and Teaching Elementary Mathematics
 Mathematics for Elementary Teachers with Activities,
 Elementary Mathematics in Context
 The Mathematics of the Elementary School
 Figuring Out Fluency in Mathematics Teaching and Learning, Grades K-8
 Mathematics, Education, and Other Endangered Species
 My Brain is Open
 Mathematics Content for Elementary Teachers
 Daily Routines to Jump-Start Math Class, Elementary School
 Cases on Technology Integration in Mathematics Education

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SCARLET ROSA

What is Mathematics? Corwin Press

Students pursue problems they're curious about, not problems they're told to solve. Creating a math classroom filled with confident problem solvers starts by introducing challenges discovered in the real world, not by presenting a sequence of prescribed problems, says Gerald Aungst. In this groundbreaking book, he offers a thoughtful approach for instilling a culture of learning in your classroom through five powerful, yet straightforward principles: Conjecture, Collaboration, Communication, Chaos, and Celebration. Aungst shows you how to Embrace collaboration and purposeful chaos to help students engage in productive struggle, using non-routine and unsolved problems Put each chapter's principles into practice through a variety of strategies, activities, and by incorporating technology tools Introduce substantive, lasting cultural changes in your classroom through a manageable, gradual shift in processes and behaviors Five Principles of the Modern Mathematics Classroom offers new ideas for inspiring math students by building a more engaging and collaborative learning environment. "Bravo! This book brings a conceptual framework for K-12 mathematics to life. As a parent and as the executive director of Edutopia, I commend Aungst for sharing his 5 principles. This is a perfect blend of inspiring and practical. Highly recommended!" Cindy Johanson, Executive Director, Edutopia George Lucas Educational Foundation "Aungst ignites the magic of mathematics by reminding us what makes mathematicians so passionate about their subject matter. Grounded in research, his work takes us on a journey into classrooms so that we may take away tips to put into practice today." Erin Klein, Teacher, Speaker, and Author of Redesigning Learning Spaces

Teaching Elementary Mathematics to Struggling Learners
 Corwin Press

Common Core education standards establish a clear set of specific ideas and skills that all students should be able comprehend at each grade level. In an effort to meet these standards, educators are turning to technology for improved learning outcomes. Cases on Technology and Common Core Mathematics provides a compilation of cases and vignettes about the application of technology in the classroom in order to enhance student understanding of math concepts. This book is a timely reference source for mathematics educators, educational

technologists, and school district leaders employed in the mathematics education or educational technology fields.

The Essence of Mathematics Through Elementary Problems
 Routledge

This is a textbook for pre-service elementary school teachers and for current teachers who are taking professional development courses. By emphasizing the precision of mathematics, the exposition achieves a logical and coherent account of school mathematics at the appropriate level for the readership. Wu provides a comprehensive treatment of all the standard topics about numbers in the school mathematics curriculum: whole numbers, fractions, and rational numbers. Assuming no previous knowledge of mathematics, the presentation develops the basic facts about numbers from the beginning and thoroughly covers the subject matter for grades K through 7. Every single assertion is established in the context of elementary school mathematics in a manner that is completely consistent with the basic requirements of mathematics. While it is a textbook for pre-service elementary teachers, it is also a reference book that school teachers can refer to for explanations of well-known but hitherto unexplained facts. For example, the sometimes-puzzling concepts of percent, ratio, and rate are each given a treatment that is down to earth and devoid of mysticism. The fact that a negative times a negative is a positive is explained in a leisurely and comprehensible fashion.

Mathematics for Elementary Teachers Elsevier

This edited volume will help educators better analyze methodological and practical tools designed to aid classroom instruction. It features papers that explore the need to create a system in order to fully meet the uncertainties and developments of modern educational phenomena. These have emerged due to the abundance of digital resources and new forms of collective work. The collected papers offer new perspectives to a rising field of research known as the Documentational Approach to Didactics. This framework was first created by the editors of this book. It seeks to develop a deeper understanding of mathematics teaching expertise. Readers will gain insight into how to meet the theoretical questions brought about by digitalization. These include: how to analyze teachers' work when they prepare for their teaching, how to conceptualize the relationships between individual and collective work, and how to follow the related processes over the long term. The contributors also provide a comparative view in terms of contrasting selected phenomena across different educational cultures and education systems. For instance, they consider how differences in curriculum resources

are available to teachers and how teachers make use of them to shape instruction. Coverage also considers the extent to which teachers make use of additional material, particularly those available through the global marketplace on the Internet. This book builds on works from the Re(s)ources 2018 Conference, Understanding teachers' work through their interactions with resources for teaching, held in Lyon, France.

Mathematics for Elementary Teachers: A Conceptual Approach Pearson

Take a deep dive into the five practices for facilitating productive mathematical discussions Enhance your fluency in the five practices—anticipating, monitoring, selecting, sequencing, and connecting—to bring powerful discussions of mathematical concepts to life in your elementary classroom. This book unpacks the five practices for deeper understanding and empowers you to use each practice effectively. • Video excerpts vividly illustrate the five practices in action in real elementary classrooms • Key questions help you set learning goals, identify high-level tasks, and jumpstart discussion • Prompts guide you to be prepared for and overcome common challenges Includes planning templates, sample lesson plans and completed monitoring tools, and mathematical tasks.

MATHEMATICS FOR ELEMENTARY TEACHERS. (PRODUCT ID 23864410). Courier Corporation

Knots are familiar objects. Yet the mathematical theory of knots quickly leads to deep results in topology and geometry. This work offers an introduction to this theory, starting with our understanding of knots. It presents the applications of knot theory to modern chemistry, biology and physics.

Fundamentals of Elementary Mathematics McGraw-Hill

Science, Engineering & Mathematics
 Studies of teachers in the U.S. often document insufficient subject matter knowledge in mathematics. Yet, these studies give few examples of the knowledge teachers need to support teaching, particularly the kind of teaching demanded by recent reforms in mathematics education. Knowing and Teaching Elementary Mathematics describes the nature and development of the knowledge that elementary teachers need to become accomplished mathematics teachers, and suggests why such knowledge seems more common in China than in the United States, despite the fact that Chinese teachers have less formal education than their U.S. counterparts. The anniversary edition of this bestselling volume includes the original studies that compare U.S and Chinese elementary school teachers' mathematical understanding and offers a powerful framework for grasping the

mathematical content necessary to understand and develop the thinking of school children. Highlighting notable changes in the field and the author's work, this new edition includes an updated preface, introduction, and key journal articles that frame and contextualize this seminal work.

A History of Elementary Mathematics Routledge

Selected as the Michigan Council of Teachers of Mathematics winter book club book! Rich tasks, collaborative work, number talks, problem-based learning, direct instruction...with so many possible approaches, how do we know which ones work the best? In *Visible Learning for Mathematics*, six acclaimed educators assert it's not about which one—it's about when—and show you how to design high-impact instruction so all students demonstrate more than a year's worth of mathematics learning for a year spent in school. That's a high bar, but with the amazing K-12 framework here, you choose the right approach at the right time, depending upon where learners are within three phases of learning: surface, deep, and transfer. This results in "visible" learning because the effect is tangible. The framework is forged out of current research in mathematics combined with John Hattie's synthesis of more than 15 years of education research involving 300 million students. Chapter by chapter, and equipped with video clips, planning tools, rubrics, and templates, you get the inside track on which instructional strategies to use at each phase of the learning cycle: Surface learning phase:

When—through carefully constructed experiences—students explore new concepts and make connections to procedural skills and vocabulary that give shape to developing conceptual understandings. Deep learning phase: When—through the solving of rich high-cognitive tasks and rigorous discussion—students make connections among conceptual ideas, form mathematical generalizations, and apply and practice procedural skills with fluency. Transfer phase: When students can independently think through more complex mathematics, and can plan, investigate, and elaborate as they apply what they know to new mathematical situations. To equip students for higher-level mathematics learning, we have to be clear about where students are, where they need to go, and what it looks like when they get there. *Visible Learning for Math* brings about powerful, precision teaching for K-12 through intentionally designed guided, collaborative, and independent learning.

Essentials of Elementary School Mathematics IGI Global

Now in its third edition, *Mathematics in the Primary School* has been updated to reflect recent mathematics curriculum documentation and revised standards for QTS. Key areas include: The role of talk in learning maths Teacher questioning Development of children's reasoning Creative engagement with maths Assessment for learning and self assessment Suggested resources for teachers including ICT Providing a coherent set of principles for teaching primary mathematics across the main topics in the curriculum, the authors explore children's understanding of key areas of mathematics, at reception, infant and junior levels. Important principles and teaching approaches are identified, including the use of calculators and computers, and there is an emphasis on mental mathematics and problem solving supporting key issues raised by the Williams review (2008). Case studies are used throughout to illustrate how different teaching approaches are put into practice and how children respond to them, and there is advice on planning, organisation and assessment of mathematical learning in the classroom. Emphasising the importance of teachers' own mathematical knowledge and offering clear guidance and practical advice, this book is essential reading for students, NQTs and practising teachers with a focus on primary mathematics.

Math Circles for Elementary School Students Guilford Publications

Packed with effective instructional strategies, this book explores why certain K-5 students struggle with math and provides a framework for helping these learners succeed. The authors present empirically validated practices for supporting students with disabilities and others experiencing difficulties in specific areas of math, including problem solving, early numeracy, whole-number operations, fractions, geometry, and algebra. Concrete examples, easy-to-implement lesson-planning ideas, and connections to state standards, in particular the Common Core standards, enhance the book's utility. Also provided is invaluable guidance on planning and delivering multi-tiered instruction and intervention.

Concept-Based Mathematics Corwin Press

"The ancient Greeks argued that the best life was filled with beauty, truth, justice, play and love. The mathematician Francis Su knows just where to find them."--Kevin Hartnett, *Quanta Magazine* "This is perhaps the most important mathematics book of our time. Francis Su shows mathematics is an experience of the mind and, most important, of the heart."--James Tanton, *Global Math Project* For mathematician Francis Su, a society without mathematical affection is like a city without concerts, parks, or museums. To miss out on mathematics is to live without experiencing some of humanity's most beautiful ideas. In this profound book, written for a wide audience but especially for those disenchanted by their past experiences, an award-winning mathematician and educator weaves parables, puzzles, and

personal reflections to show how mathematics meets basic human desires--such as for play, beauty, freedom, justice, and love--and cultivates virtues essential for human flourishing. These desires and virtues, and the stories told here, reveal how mathematics is intimately tied to being human. Some lessons emerge from those who have struggled, including philosopher Simone Weil, whose own mathematical contributions were overshadowed by her brother's, and Christopher Jackson, who discovered mathematics as an inmate in a federal prison. Christopher's letters to the author appear throughout the book and show how this intellectual pursuit can--and must--be open to all.

Mathematics in the Primary School American Mathematical Soc. National Curriculum guidelines emphasise knowledge, understanding and skills. The author, an internationally recognised authority, provides teachers with a clear explanation of these principles, and explains the relation between understanding and skills, and describes their application to the teaching of mathematics. The book contains numerous activities to show how mathematics can be learnt in the primary classroom with understanding and enjoyment, including: * formation of mathematical concepts * construction of knowledge * contents and structure of primary mathematics

Mathematics for Elementary Teachers with Activities, Books a la Carte Edition Pearson Education

THE book for elementary education mathematics content courses! Designed to help prospective teachers of elementary school mathematics learn content beyond the rote level, this text stimulates readers to think beyond just getting the problem right and fosters their development into thoughtful, reflective, self-motivated, life-long learners. It stresses the what and why of elementary school mathematics content. Hints are provided about how to teach the content but this is mostly left to courses and texts that are dedicated to that purpose. The text is organized around the National Council for Teachers of Mathematics' Principles and Standards for School Mathematics. The Standards dictate the basic sections of the text. Within each section, appropriate specific topics are developed, intertwined with technology, problem solving, assessment, equity issues, planning, teaching skills, use of manipulatives, sequencing, and much more. In addition, major focal points of the Standards are emphasized throughout: effective teachers of mathematics should be able to motivate all students to learn, should understand the developmental levels of how children learn, should concentrate on what children need to become active participants in the learning environment, and should be engaged in ongoing investigations of new mathematical concepts and teaching strategies. *Mathematics Content for Elementary Teachers* is based on several fundamental premises: *The focus of mathematics education should be on the process, not the answer. *Elementary teachers should know the mathematics content they are teaching, know more than the content they are teaching, and teach from the overflow of knowledge. *It is important for teachers to be flexible in allowing students to use different procedures--teaching from the "overflow of knowledge" implies knowing how to do a given operation more than one way and being willing to examine many different ways. *Teachers need to learn to carefully cover the topics to be taught, to reflect upon them, and to be able to organize them. To help prospective elementary teachers concentrate on the mathematics content they will be expected to teach and begin to build the foundation for the methods they will use, this text includes only elementary mathematics content and does not address middle school concepts. Pedagogical features: *The text is organized according to NCTM Standards. *An informal writing style speaks directly to readers and is geared to pre-service teachers. *Focus is given to multiple methods of problem solving at four developmental levels. *Questions, exercises, and activities are interspersed throughout each section rather than gathered at the end of each chapter. *Complete solutions for exercises are provided.

The Five Practices in Practice [Elementary] Routledge

For courses in Math for Future Elementary Teachers. Empowering Tomorrow's Math Teachers *Mathematics for Future Elementary Teachers with Activities*, 5th Edition connects the foundations of teaching elementary math and the "why" behind procedures, formulas and reasoning so students gain a deeper understanding to bring into their own classrooms. Through her text, Beckmann teaches mathematical principles while addressing the realities of being a teacher. With in-class collaboration and activities, she challenges students to be actively engaged. An inquiry-based approach to this course allows future teachers to learn through exploration and group work, leading to a deeper understanding of mathematics. Known for her contributions in math education, Beckmann writes the leading text for the inquiry approach; in *Mathematics for Elementary Teachers with Activities*, students engage, explore, discuss, and ultimately reach a true understanding of mathematics. Beckmann's text covers the Common Core State Standards for Mathematics (CCSSM) now implemented in most states. However, states not following Common Core will not find the information intrusive in the text. Also available with MyLab Math. MyLab™ Math is an online homework, tutorial, and assessment program designed to work

with this text to engage students and improve results. The Skills Review MyLab Math provides review and skill development that complements the text, helping students brush-up on skills needed to be successful in class. The MyLab Math course doesn't mirror the problems from the text, but instead covers basic skills needed prior to class, eliminating the need to spend valuable class time re-teaching basics that students should already know. This enables students to have a richer experience in the classroom while working through the book activities and problems. In addition to basic skills review, the MyLab Math course includes a wealth of resources to help students visualize the concepts and understand how they come into play in an elementary classroom. These includes IMAP videos, Responding to Students Videos, eManipulatives, and brand new Common Core videos, Demonstration videos, and GeoGebra animations. NOTE: You are purchasing a standalone product; MyLab™ Math does not come packaged with this content. If you would like to purchase both the physical text and MyLab Math, search for: 0134754204 / 9780134754208 *Mathematics for Elementary Teachers with Activities Plus MyLab Math - Title-Specific Access Card Package* Package consists of: 0134392795 / 9780134392790 *Mathematics for Elementary Teachers with Activities* 013475168X / 9780134751689 *MyLab Math with Pearson eText - Standalone Access Card - for Mathematics for Elementary Teachers with Activities*

The Knot Book Addison Wesley Longman

This activities manual includes activities designed to be done in class or outside of class. These activities promote critical thinking and discussion and give students a depth of understanding and perspective on the concepts presented in the text.

What is Mathematics? Springer Nature

The main part of this book describes the first semester of the existence of a successful and now highly popular program for elementary school students at the Berkeley Math Circle. The topics discussed in the book introduce the participants to the basics of many important areas of modern mathematics, including logic, symmetry, probability theory, knot theory, cryptography, fractals, and number theory. Each chapter in the first part of this book consists of two parts. It starts with generously illustrated sets of problems and hands-on activities. This part is addressed to young readers who can try to solve problems on their own or to discuss them with adults. The second part of each chapter is addressed to teachers and parents. It includes comments on the topics of the lesson, relates those topics to discussions in other chapters, and describes the actual reaction of math circle participants to the proposed activities. The supplementary problems that were discussed at workshops of Math Circle at Kansas State University are given in the second part of the book. The book is richly illustrated, which makes it attractive to its young audience. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the Mathematical Circles Library series as a service to young people, their parents and teachers, and the mathematics profession. Titles in this series are co-published with the Mathematical Sciences Research Institute (MSRI).

Mathematics for Human Flourishing McGraw-Hill Companies

The tenth edition of *Mathematics for Elementary Teachers: A Conceptual Approach* continues the innovative time-tested approach of the previous editions: an emphasis on learning via specific, realistic examples and the extensive use of visual aids, hands-on activities, problem-solving strategies and active classroom participation. Features of the text focus on ensuring that prospective teachers will gain not only a deeper understanding of the mathematical concepts, but also a better sense of the connections between their college math courses and their future teaching experiences, along with helpful ideas for presenting math to their students in a way that will generate interest and enthusiasm. The text draws heavily on Common Core Standards and contains many pedagogical elements designed to foster reasoning, problem-solving and communication skills. Additionally, this text can be packaged with an activity set that corresponds to each section of the companion text, *Mathematics for Elementary Teachers: An Activity Approach*, also by the Bennett, Burton, and Nelson team. *Mathematics for Elementary Teachers: An Activity Approach* can be used independently or along with its companion, *Mathematics for Elementary Teachers: A Conceptual Approach*.

A Problem Solving Approach to Mathematics for Elementary School Teachers American Mathematical Soc.

Do your students need more practice to develop number sense and reasoning? Are you looking to engage your students with activities that are uncomplicated, worthwhile, and doable? Have you had success with number talks but do your students crave more variety? Have you ever thought, "What can I do differently?" Swap out traditional warmup practices and captivate your elementary students with these new, innovative, and ready-to-go routines! Trusted elementary math expert John J. SanGiovanni details 20 classroom-proven practice routines to help you ignite student engagement, reinforce learning, and prepare students for the lesson ahead. Each quick and lively activity spurs

mathematics discussion and provides a structure for talking about numbers, number concepts, and number sense. Designed to jump-start mathematics reasoning in any elementary classroom, the routines are: Rich with content-specific examples and extensions Modifiable to work with math content at any K-5 grade level Compatible with any textbook or core mathematics curriculum Practical, easy-to-implement, and flexible for use as a warm-up or other activity Accompanied by online slides and video demonstrations, the easy 5-10 minute routines become your go-to materials for a year's work of daily plug-and-play short-burst reasoning and fluency instruction that reinforces learning and instills mathematics confidence in students. Students' brains are most ready to learn in the first few minutes of math class. Give math practice routines a makeover in your classroom with these 20 meaningful and energizing warmups for learning crucial mathematics skills and concepts, and make every minute count. *5 Principles of the Modern Mathematics Classroom* Simon and Schuster

This book is designed for a mathematics for elementary school teachers course where instructors choose to focus on and/or take an activities approach to learning. It provides inductive activities for prospective elementary school teachers and incorporates the use of physical models, manipulatives, and visual images to develop concepts and encourage higher-level thinking. This text contains an activity set that corresponds to each section of the companion text, *Mathematics for Elementary Teachers: A Conceptual Approach* which is also by Bennett/Nelson. The Activities Approach text can be used independently or along with its companion volume. The authors are pleased to welcome Laurie Burton, PhD, Western Oregon University to this edition of *Mathematics for Elementary Teachers: An Activity Approach. Mathematics for Elementary School Teachers, International Edition* Academic Press

Because fluency practice is not a worksheet. Fluency in mathematics is more than adeptly using basic facts or implementing algorithms. Real fluency involves reasoning and creativity, and it varies by the situation at hand. Figuring Out

Fluency in Mathematics Teaching and Learning offers educators the inspiration to develop a deeper understanding of procedural fluency, along with a plethora of pragmatic tools for shifting classrooms toward a fluency approach. In a friendly and accessible style, this hands-on guide empowers educators to support students in acquiring the repertoire of reasoning strategies necessary to becoming versatile and nimble mathematical thinkers. It includes: "Seven Significant Strategies" to teach to students as they work toward procedural fluency. Activities, fluency routines, and games that encourage learning the efficiency, flexibility, and accuracy essential to real fluency. Reflection questions, connections to mathematical standards, and techniques for assessing all components of fluency. Suggestions for engaging families in understanding and supporting fluency. Fluency is more than a toolbox of strategies to choose from; it's also a matter of equity and access for all learners. Give your students the knowledge and power to become confident mathematical thinkers.