

Paper Folding Fractions Activity

Mathematics and Multi-Ethnic Students provides detailed profiles of teachers across the nation who have implemented effective mathematics instruction for diverse student populations. In this revised edition, Yvelyne Germain-McCarthy expands upon the popular case studies and adds two new chapters to highlight the latest educational research and practices that are reflected in the case studies. A third new chapter introduces the concept of the Life-Long Learning Laboratory where courageous questions on issues such as the impact of race on student learning are discussed. Featuring useful framing tools including the Discussion with Colleagues and Commentary sections, Mathematics and Multi-Ethnic Students translates concrete instances of access and equity into generalized problem-solving methods for promoting ethnic diversity across grade levels. An important resource for pre-service and in-service educators, researchers, administrators, and policy makers, this volume highlights the work of teachers who have gone beyond mere awareness of reform recommendations in mathematics instruction. By uniting the goals of multicultural education with those of the mathematics curriculum, educators will learn to conceptualize and implement best practices for effective, equitable teaching and learning of mathematics for their students.

The fifth edition of Teaching Primary Mathematics has been significantly revised and

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updated for the current educational environment. The organisation of the book has been redesigned to reflect feedback from readers and the approach taken by the Australian Curriculum: Mathematics. Teaching Primary Mathematics provides teachers and students with a sound framework for the successful teaching of mathematics to primary students. It is suitable both as a core text for primary student teachers and as an indispensable reference for practicing primary teachers seeking to update their knowledge.

There are over 200 engaging activities to reinforce important math skills. The activities are divided into five main sections based on NCTM national math standards: Number & Operations, Algebra, Geometry, Measurement, and Data Analysis and Probability. You'll also find bulletin board ideas and ideas for learning centers.

Technology-enabled Mathematics Education explores how teachers of mathematics are using digital technologies to enhance student engagement in classrooms, from the early years through to the senior years of school. The research underpinning this book is grounded in real classrooms. The chapters offer ten rich case studies of mathematics teachers who have become exemplary users of technology. Each case study includes the voices of leaders, teachers and their students, providing insights into their practices, beliefs and perceptions of mathematics and technology-enabled teaching. These insights inform an exciting new theoretical model, the Technology Integration Pyramid, for guiding teachers and researchers as they endeavour to understand the complexities

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involved in planning for effective teaching with technology. This book is a unique resource for educational researchers and students studying primary and secondary mathematics teaching, as well as practising mathematics teachers.

"A complete research-based, K-5 mathematics program integrating math, science and language arts. [The program] embodies the NCTM Principles and standards for school mathematics and is based on the ideas that mathematics is best learned by solving problems in real-world contexts and that a curriculum should balance conceptual understanding and procedural skill"--P. 4 of cover.

Would you rather eat $\frac{1}{4}$ of a pizza or $\frac{1}{8}$ of a pizza? Find $\frac{3}{4}$ of a dollar or $\frac{1}{10}$ of a dollar? Confused? You don't have to be! Fractions are made easy in this simple and hands-on math concept book. You'll learn what the top and bottom numbers are called, and what they mean. You will also find out how to recognize and compare different fractions. Just follow the clear instructions and you will learn the most important thing of all -- that fractions can be fun!

Engage students in mathematics using growth mindset techniques The most challenging parts of teaching mathematics are engaging students and helping them understand the connections between mathematics concepts. In this volume, you'll find a collection of low floor, high ceiling tasks that will help you do just that, by looking at the big ideas at the third-grade level through visualization, play, and investigation. During their work with tens of thousands of teachers, authors Jo Boaler, Jen Munson, and Cathy Williams heard the same message—that they want to incorporate more brain science into their math instruction, but they need guidance in the

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techniques that work best to get across the concepts they needed to teach. So the authors designed Mindset Mathematics around the principle of active student engagement, with tasks that reflect the latest brain science on learning. Open, creative, and visual math tasks have been shown to improve student test scores, and more importantly change their relationship with mathematics and start believing in their own potential. The tasks in Mindset Mathematics reflect the lessons from brain science that: There is no such thing as a math person - anyone can learn mathematics to high levels. Mistakes, struggle and challenge are the most important times for brain growth. Speed is unimportant in mathematics. Mathematics is a visual and beautiful subject, and our brains want to think visually about mathematics. With engaging questions, open-ended tasks, and four-color visuals that will help kids get excited about mathematics, Mindset Mathematics is organized around nine big ideas which emphasize the connections within the Common Core State Standards (CCSS) and can be used with any current curriculum.

Term book

To define better techniques of mathematics education, this book combines a knowledge of cognitive science with mathematics curriculum theory and research. The concept of the human reasoning process has been changed fundamentally by cognitive science in the last two decades. The role of memory retrieval, domain-specific and domain-general skills, analogy, and mental models is better understood now than previously. The authors believe that cognitive science provides the most accurate account thus far of the actual processes that people use in mathematics and offers the best potential for genuine increases in efficiency. As such, they suggest that a cognitive science approach enables constructivist ideas to be

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analyzed and further developed in the search for greater understanding of children's mathematical learning. Not simply an application of cognitive science, however, this book provides a new perspective on mathematics education by examining the nature of mathematical concepts and processes, how and why they are taught, why certain approaches appear more effective than others, and how children might be assisted to become more mathematically powerful. The authors use recent theories of analogy and knowledge representation -- combined with research on teaching practice -- to find ways of helping children form links and correspondences between different concepts, so as to overcome problems associated with fragmented knowledge. In so doing, they have capitalized on new insights into the values and limitations of using concrete teaching aids which can be analyzed in terms of analogy theory. In addition to addressing the role of understanding, the authors have analyzed skill acquisition models in terms of their implications for the development of mathematical competence. They place strong emphasis on the development of students' mathematical reasoning and problem solving skills to promote flexible use of knowledge. The book further demonstrates how children have a number of general problem solving skills at their disposal which they can apply independently to the solution of novel problems, resulting in the enhancement of their mathematical knowledge.

Term book. The ebook version does not contain CD.

Put math manipulatives to work in your classroom and make teaching and learning math both meaningful and productive. *Mastering Math Manipulatives* includes everything you need to integrate math manipulatives—both concrete and virtual—into math learning. Each chapter of this richly illustrated, easy-to-use guide focuses on a different powerful tool, such as base ten

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blocks, fraction manipulatives, unit squares and cubes, Cuisenaire Rods, Algebra tiles and two-color counters, geometric strips and solids, geoboards, and others, and includes a set of activities that demonstrate the many ways teachers can leverage manipulatives to model and reinforce math concepts for all learners. It features:

- Classroom strategies for introducing math manipulatives, including commercial, virtual, and hand-made manipulatives, into formal math instruction.
- Step-by-step instructions for over 70 activities that work with any curriculum, including four-color photos, printable work mats, and demonstration videos.
- Handy charts that sort activities by manipulative type, math topic, domains aligned with standards, and grade-level appropriateness.

Now in its second edition, *Primary Mathematics* continues to provide a comprehensive introduction to teaching and learning mathematics in today's classrooms. With links to both the Australian and New Zealand curricula, this book covers the core learning areas of measurement, space and geometry, early number concepts, data and statistics, chance and probability, and patterns and algebra. *Primary Mathematics* encourages the integration of technology into a pedagogically sound learning sequence for primary mathematics, and provides teachers with detailed activities and examples to cater for the mathematical needs of all learners. The book comes with free twelve-month access to Cambridge H^OTmaths, a popular, award-winning online tool with engaging multimedia to help students and teachers learn and teach mathematical concepts.

Teacher's Notes -- Helps you get the most out of *Maths Spotlight*. Includes planning grids with curriculum referencing to the objectives you want to cover.

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Lesson study is a professional development process that teachers engage in to systematically examine their practice, with the goal of becoming more effective. Originating in Japan, lesson study has gained significant momentum in the mathematics education community in recent years. As a process for professional development, lesson study became highly visible when it was proposed as a means of supporting the common practice of promoting better teaching by disseminating documents like standards, benchmarks and nationally validated curricula. While the body of knowledge about lesson study is growing, it remains somewhat elusive and composed of discrete research endeavors. As a new research area there is no coherent knowledge base yet. This book will contribute to the field bringing the work of researchers and practitioners together to create a resource for extant work. This book describes several aspects of Lesson Study, amongst others: it gives an historical overview of the concept, it addresses issues related to learning and teaching mathematics, it looks at the role of the teacher in the process. The last two sections of the book look at how lesson Study can be used with preservice mathematics teachers and at university mathematics methods teaching.

Develop a deep understanding of mathematics. This user-friendly resource presents grades 3–5 teachers with a logical progression of pedagogical actions,

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classroom norms, and collaborative teacher team efforts to increase their knowledge and improve mathematics instruction. Focus on an understanding of and procedural fluency with multiplication and division. Address how to learn and teach fraction concepts and operations with depth. Thoroughly teach plane and solid geometry. Explore strategies and techniques to effectively learn and teach significant mathematics concepts and provide all students with the precise, accurate information they need to achieve academic success. Benefits Dig deep into mathematical modeling and reasoning to improve as both a learner and teacher of mathematics. Explore how to develop, select, and modify mathematics tasks in order to balance cognitive demand and engage students. Discover the three important norms to uphold in all mathematics classrooms. Learn to apply the tasks, questioning, and evidence (TQE) process to ensure mathematics instruction is focused, coherent, and rigorous. Use charts and diagrams for classifying shapes, which can engage students in important mathematical practices. Access short videos that show what classrooms that are developing mathematical understanding should look like. Contents Introduction 1 Place Value, Addition, and Subtraction 2 Multiplication and Division 3 Fraction Concepts 4 Fraction Operations 5 Geometry 6 Measurement Epilogue Next Steps Appendix A Completed Classification of Triangles Chart Appendix B

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Completed Diagram for Classifying Quadrilaterals

Engage students in mathematics using growth mindset techniques The most challenging parts of teaching mathematics are engaging students and helping them understand the connections between mathematics concepts. In this volume, you'll find a collection of low floor, high ceiling tasks that will help you do just that, by looking at the big ideas at the seventh-grade level through visualization, play, and investigation. During their work with tens of thousands of teachers, authors Jo Boaler, Jen Munson, and Cathy Williams heard the same message—that they want to incorporate more brain science into their math instruction, but they need guidance in the techniques that work best to get across the concepts they needed to teach. So the authors designed Mindset Mathematics around the principle of active student engagement, with tasks that reflect the latest brain science on learning. Open, creative, and visual math tasks have been shown to improve student test scores, and more importantly change their relationship with mathematics and start believing in their own potential. The tasks in Mindset Mathematics reflect the lessons from brain science that: There is no such thing as a math person - anyone can learn mathematics to high levels. Mistakes, struggle and challenge are the most important times for brain growth. Speed is unimportant in mathematics. Mathematics is a visual and beautiful

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subject, and our brains want to think visually about mathematics. With engaging questions, open-ended tasks, and four-color visuals that will help kids get excited about mathematics, Mindset Mathematics is organized around nine big ideas which emphasize the connections within the Common Core State Standards (CCSS) and can be used with any current curriculum.

Make math matter to students in grades 1–2 using Keys to Math Success! This 96-page book includes student-friendly activity pages and posttests in standardized test format. It provides practice for all students but is geared toward struggling learners. This book is excellent for independent work, classroom work, and homework assignments. It supports NCTM standards.

Any way you slice it, fractions are foundational. Many students struggle with fractions and must understand them before learning higher-level math. Veteran educator David B. Spangler describes powerful diagnostic methods for error analysis that pinpoint specific student misconceptions and supplies specific intervention strategies and activities for each error pattern. Aligned with NCTM and Common Core State Standards, the research-based, targeted interventions for each error pattern promoted teaching for conceptual understanding. Practical materials include: Reproducibles for diagnostic tests Practice pages for exercises keyed to the diagnostic tests and error patterns Teacher resources for hands-on

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activities, game sheets and pieces, and more

Maths Activity Book

When Caren Holtzman and Lynn Susholtz look around a classroom, they see "a veritable goldmine of mathematical investigations" involving number, measurement, size, shape, symmetry, ratio, and proportion. They also think of the ways great artists have employed these concepts in their depictions of objects and space--for example, Picasso's use of geometric shapes in his Cubist still lifes or contemporary artist Tara Donovan's room-sized sculptures of everyday items. In their new book *Object Lessons*, Caren (a math educator) and Lynn (an artist and art educator) use a highly visual approach to show students and teachers the art in math and the math in art. Integrating visual arts into math experiences makes the lessons accessible, engaging, and meaningful for a wide range of students. In each chapter, the authors use everyday objects to create rigorous, hands-on activities that address key mathematics standards and concepts. Each lesson provides: * an introduction to the featured object that explains how it connects to key mathematical concepts; * a discussion of the artists, art styles and techniques featured; * activities organized by grade level and math content area; * the basic materials required to prepare and teach each lesson; * a clear picture of what the lesson will look like in a classroom; and * a list of resources. The book and its accompanying CD feature a wonderful gallery of images--including art photos and student work--and a collection of links to art education organizations, museums, and Web sites that focus on the work of forty major artists.

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between mathematics concepts. In this volume, you'll find a collection of low floor, high ceiling tasks that will help you do just that, by looking at the big ideas at the fifth-grade level through visualization, play, and investigation. During their work with tens of thousands of teachers, authors Jo Boaler, Jen Munson, and Cathy Williams heard the same message—that they want to incorporate more brain science into their math instruction, but they need guidance in the techniques that work best to get across the concepts they needed to teach. So the authors designed Mindset Mathematics around the principle of active student engagement, with tasks that reflect the latest brain science on learning. Open, creative, and visual mathematics tasks have been shown to improve student test scores, and more importantly change their relationship with mathematics and start believing in their own potential. The tasks in Mindset Mathematics reflect the lessons from brain science that: There is no such thing as a math person - anyone can learn mathematics to high levels. Mistakes, struggle and challenge are the most important times for brain growth. Speed is unimportant in mathematics. Mathematics is a visual and beautiful subject, and our brains want to think visually about mathematics. With engaging questions, open-ended tasks, and four-color visuals that will help kids get excited about mathematics, Mindset Mathematics is organized around nine big ideas which emphasize the connections within the Common Core State Standards (CCSS) and can be used with any current curriculum.

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this richly illustrated, easy-to-use guide focuses on a different powerful tool, such as two-color counters, linking cubes, base ten blocks, fraction manipulatives, pattern blocks, tangrams, geometric solids, and others, and includes a set of activities that demonstrate the many ways teachers can leverage manipulatives to model and reinforce math concepts for all learners. It features:

- Classroom strategies for introducing math manipulatives, including commercial, virtual, and hand-made manipulatives, into formal math instruction.
- Step-by-step instructions for 75 activities that work with any curriculum, including four-color photos, printable work mats, and demonstration videos.
- Handy charts that sort activities by manipulative type, math topic, domains aligned with standards, and grade-level appropriateness.

David B. Spangler outlines powerful diagnostic and NCTM- and Common Core State Standards-aligned RTI strategies for analyzing student errors and provides specific interventions for each error pattern.

Middle school teaching and learning has a distinct pedagogy and curriculum that is grounded in the concept of developmentally appropriate education. This text is designed to meet the very specific professional development needs of future teachers of mathematics in middle school environments. Closely aligned with the NCTM Principles and Standards for School Mathematics, the reader-friendly, interactive format encourages readers to begin developing their own teaching style and making informed decisions about how to approach their future teaching career. A variety of examples establish a broad base of ideas intended to

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stimulate the formative development of concepts and models that can be employed in the classroom. Readers are encouraged and motivated to become teaching professionals who are lifelong learners. The text offers a wealth of technology-related information and activities; reflective, thought-provoking questions; mathematical challenges; student life-based applications; TAG (tricks-activities-games) sections; and group discussion prompts to stimulate each future teacher's thinking. "Your Turn" sections ask readers to work with middle school students directly in field experience settings. This core text for middle school mathematics methods courses is also appropriate for elementary and secondary mathematics methods courses that address teaching in the middle school grades and as an excellent in-service resource for aspiring or practicing teachers of middle school mathematics as they update their knowledge base. Topics covered in Teaching Middle School Mathematics: *NCTM Principles for School Mathematics; *Representation; *Connections; *Communication; *Reasoning and Proof; *Problem Solving; *Number and Operations; *Measurement; *Data Analysis and Probability; *Algebra in the Middle School Classroom; and *Geometry in the Middle School Classroom.

Sponsored by the National Council of Teachers of Mathematics and written by leading experts in the field of mathematics education, the Handbook is

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specifically designed to make important, vital scholarship accessible to mathematics education professors, graduate students, educational researchers, staff development directors, curriculum supervisors, and teachers. The Handbook provides a framework for understanding the evolution of the mathematics education research field against the backdrop of well-established conceptual, historical, theoretical, and methodological perspectives. It is an indispensable working tool for everyone interested in pursuing research in mathematics education as the references for each of the Handbook's twenty-nine chapters are complete resources for both current and past work in that particular area. Learn how to make all sorts of pictures, from birds and fish to clowns and flowers, by using the simplest of shapes.

The new emphasis in the Singapore mathematics education is on Big Ideas (Charles, 2005). This book contains more than 15 chapters from various experts on mathematics education that describe various aspects of Big Ideas from theory to practice. It contains chapters that discuss the historical development of mathematical concepts, specific mathematical concepts in relation to Big Ideas in mathematics, the spirit of Big Ideas in mathematics and its enactment in the mathematics classroom. This book presents a wide spectrum of issues related to Big Ideas in mathematics education. On the one end, we have topics that are

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mathematics content related, those that discuss the underlying principles of Big Ideas, and others that deepen the readers' knowledge in this area, and on the other hand there are practice oriented papers in preparing practitioners to have a clearer picture of classroom enactment related to an emphasis on Big Ideas.

A Text book on Maths

Active Maths Teacher Resource 2 contains the teaching framework. It describes a range of classroom activities and practice, provides additional worksheets and is cross-referenced to the student activity pages, the Quality Teaching Framework and relevant cards in the Maths-in-a-Box series.

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