

# Number Sense Routines

The Classroom Key



# Number Sense Routines Number Sense Routines

**Melissa Conklin**



## **Number Sense Routines Number Sense Routines:**

**Number Sense Routines** Jessica Shumway, 2023-10-10 In this groundbreaking and highly practical book *Number Sense Routines Building Numerical Literacy Every Day in Grades K-3* author Jessica Shumway proposes that all children have innate number sense which can be developed through daily exercise. Shumway created a series of math routines designed to help young students strengthen and build their facility with numbers. These quick 5, 10, or 15 minute exercises are easy to implement as an add on to any elementary math curriculum. Understanding Number Sense: Students with strong number sense understand numbers, how to subitize, relationships among numbers and number systems. They make reasonable estimates, compute fluently, use reasoning strategies and use visual models to solve problems. *Number Sense Routines* supports the early learner by instilling the importance of daily warm ups and explains how they benefit developing math minds for long term learning. Real Classroom Examples: Shumway compiled her classroom observations from around the country. She includes conversations among students who practice number sense routines to illustrate them in action, how children's number sense develops with daily use and math strategies students learn as they develop their numerical literacy through self-paced practice. Assessment Strategies: *Number Sense Routines* demonstrates the importance of listening to your students and knowing what to look for. Teachers will gain a deeper understanding of the underlying math skills and strategies students learn as they develop numerical literacy. Shumway writes, "As you read, you will step into various classrooms and listen in on students' conversations which I hope will give you insight into the power of number sense routines and the impact they have on students' number sense development. My hope is that going into the classroom into students' conversations and into their thought processes, you will come away with new ideas and tools to use in your own classroom."

**Number Sense Routines** Jessica Shumway, 2023-10-10 Following up her best selling book *Number Sense Routines Building Numerical Literacy Every Day in Grades K-3*, Jessica Shumway turns her focus to upper elementary classrooms. *Number Sense Routines Developing Mathematical Understanding Every Day in Grades 3-5* is about tapping into every child's innate number sense and providing daily connected experiences that are responsive to children's learning needs. Consistent Daily Routines: Work Adaptable to any curriculum. Shumway's 5, 10, or 15 minute warm up routines are an easy and effective way to build and solidify students' number sense foundations as a supplement to any program. Planning and Facilitating Your Classroom: No matter how familiar the routine, Shumway provides insight on how to keep daily warm ups fresh. She reveals careful thinking and planning that goes into each routine and offers detailed vignettes and dialogues of how they unfold in real classrooms. Assessment Strategies: As students engage in the process, each routine becomes an exciting opportunity to gain insight into where they are in their understanding and help students articulate their mathematical thinking. Identify Big Ideas: Not only will these math routines help develop students' mathematical understanding as they move towards using standard algorithms, but teachers will learn to better recognize the big ideas that emerge in discussions, how to encourage important strategies.

based in number sense and how to facilitate conversations on key mathematical concepts These routines may appear in other places but I have never seen them written in such detail and with so many variations Although she makes what she does sound easy we all know that teaching math well is anything but easy It is challenging and complex Unpacking what students are saying helping them make connections not only to the math but to each other's ideas while simultaneously recording their ideas using mathematical models visuals or equations is no easy task Jessica provides wonderful visual examples of student work and so much more to help educators develop the tools they need to improve their practice and in so doing improve student learning From the Foreword by math coach and consultant Lucy West

**Number Sense Routines** Jessica F. Shumway, 2023 Jessica Shumway has developed a series of routines designed to help young students internalize and deepen their facility with numbers The daily use of these quick five ten or fifteen minute experiences at the beginning of math class will help build students number sense from publisher description

*Number Sense Routines* Jessica F. Shumway, 2018 Upper elementary teachers have a big job to help students deepen their mathematical understanding and become more efficient mathematicians Number Sense Routines Developing Mathematical Understanding Every Day in Grades 3-5 is about tapping into every child's innate number sense and providing daily connected experiences that are responsive to children's learning needs Through familiar five ten or fifteen minute warm up routines author Jessica Shumway offers both beginner and veteran teachers easy and effective ways to build and solidify students number sense foundations No matter how familiar the routine Jessica infuses each with new joy depth and life She reveals the careful thinking and planning that goes into each routine and provides detailed vignettes and dialogues of how they unfold in real classrooms She gives teachers a clear view into her nuanced facilitation Each routine becomes an exciting opportunity to understand where students are in their understanding and to help students articulate and extend their mathematical thinking Not only will these routines help develop students mathematical understanding as they move towards using standard algorithms but teachers will learn to better recognize the big ideas that emerge in discussions how to encourage important strategies based in number sense and how to facilitate discussions on key mathematical concepts

*Number Sense Routines* Jessica F. Shumway, 2023 Jessica Shumway has developed a series of routines designed to help young students internalize and deepen their facility with numbers The daily use of these quick five ten or fifteen minute experiences at the beginning of math class will help build students number sense from publisher description

**Answers to Your Biggest Questions About Teaching Elementary Math** John J. SanGiovanni, Susie Katt, Latrenda D. Knighten, Georgina Rivera, 2021-08-31 This practical resource provides brief actionable answers to the most pressing questions about teaching elementary math Question and answer sections include how to build a positive math community how to structure organize and manage math classes how to engage students and help them talk about math and how to assess knowledge and move forward

*The Mathematics Lesson-Planning Handbook, Grades 6-8* Lois A. Williams, Beth McCord Kobett, Ruth Harbin Miles, 2018-12-28

Your blueprint to planning Grades 6-8 math lessons that lead to achievement for all learners. When it comes to planning mathematics lessons, do you sometimes feel burdened? Have you ever scrambled for an activity to engage your students that aligns with your state standards? Do you ever look at a recommended mathematics lesson plan and think, "This will never work for my students"? The *Mathematics Lesson Planning Handbook: Your Blueprint for Building Cohesive Lessons, Grades 6-8* walks you step by step through the process of planning focused, research-based mathematics lessons that enhance the coherence, rigor, and purpose of state standards and address the unique learning needs of your individual students. This resource deepens the daily lesson planning process for middle school teachers and offers practical guidance for merging routines, resources, and effective teaching techniques into an individualized and manageable set of lesson plans. The effective planning process helps you identify learning intentions and connect goals to success criteria, select resources and worthwhile tasks that make the best use of instructional materials, structure lessons differently for traditional and block middle school schedules, anticipate student misconceptions and evaluate understanding using a variety of formative assessment techniques, facilitate questioning, encourage productive struggle, and close lessons with reflection techniques. This author team of seasoned mathematics educators make lesson planning practical and doable with a useful lesson planning template and real-life examples from Grades 6-8 classrooms. Chapter by chapter, the decision-making strategies empower teachers to plan mathematics lessons strategically to teach with intention and confidence and to build purposeful, rigorous, coherent lessons that lead to mathematics achievement for all learners.

### **The Effect of Number Sense Routines on Student Learning**

Sarah Johnson, 2016. The purpose of the study was to determine the effect of providing additional number sense routines and interventions on student learning to first-grade students. Number sense routines were utilized to build fluency in addition and subtraction as well as communicate thoughts about number, numerical relationships, and number operations. Interventions included use of bead racks, five and ten frames, screened collections, covering objects so they were not visible, counting routines, games that practiced structuring numbers, and subitizing. The interventions were offered during small-group instruction every day for four weeks. The researcher reviewed AIMSweb scores, intervention measurements, an assessment rubric used by the school district, and observational notes. Post-study, it was noted that students counted on their fingers a significantly less amount. It was also noted that students could communicate much more fluently about how they were able to solve the tasks that were posed.

*Daily Routines to Jump-Start Math Class, Elementary School* John J.

SanGiovanni, 2019-08-06. 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

*Daily Routines to Jump-Start Math Class, Middle School* John J. SanGiovanni, Eric Milou, Too often middle school and high school teachers say These students are lacking number sense These books will help secondary teachers with good pedagogy to help build number sense in a creative way John SanGiovanni and Eric Milou have created short routines that are teacher friendly with lots of examples and easy to adapt to each teacher s needs These are the books that secondary teachers have been waiting for to help engage students in building number sense Pamela J Dombrowski Secondary Math Specialist Geary County School District Junction City KS Kickstart your middle school math class Do your students need more opportunities to develop number sense and reasoning Are you looking to get your students energized and talking about mathematics Have you wondered how practical replicable and engaging activities would complement your mathematics instruction This guide answers the question What could I do differently by taking cues from some of the most effective types of routines commonly used to engage students in reasoning while developing and reinforcing their number sense This book offers 20 different routines all of which include content examples extensions and variations for grades 6 8 It includes a year s worth of daily instructional material that you can use each class period to promote student reasoning and number sense The routines in this book will help students Frequently revisit essential mathematical concepts Foster and shore up conceptual understanding Engage in mental mathematics leading to efficiency and fluency Engage in mathematical discourse by constructing viable arguments and critiquing the reasoning of others Reason mathematically which can improve performance on high stakes assessments Move learning beyond correctness by valuing mistakes and discourse to encourage a growth mindset From trusted authors and experts John SanGiovanni and Eric Milou this teacher friendly resource will give you all the tools and tips you need to reinvent those critical first five or ten minutes of math class for the better Watch the video *Daily Routines to Jump Start Math Class* *Building Number Sense* Marlene Kliman, Susan Jo Russell, 1998 **Daily Routines to Jump-Start Math Class, High School** Eric Milou, John J. SanGiovanni, 2018-07-31 Too often middle school and high school teachers say These students are lacking number sense These books will help secondary teachers with good pedagogy to help

build number sense in a creative way Eric Milou and John SanGiovanni have created short routines that are teacher friendly with lots of examples and easy to adapt to each teacher s needs These are the books that secondary teachers have been waiting for to help engage students in building number sense Pamela J Dombrowski Secondary Math Specialist Geary County School District Junction City KS Kickstart your high school math class Do your students need more opportunities do develop number sense and reasoning Are you looking to get your students energized and talking about mathematics Have you wondered how practical replicable and engaging activities would complement your mathematics instruction This guide answers the question What could I do differently Taking cues from popular number sense and reasoning routines this book gives you the rundown on how to engage in five different daily 5 10 minute routines all of which include content specific examples extensions and variations of each for algebra functions geometry and data analysis Video demonstrations allow you to see the routines in action and the book includes a year s worth of daily instructional material that you can use to begin each class period The routines in this book will help students Frequently revisit essential mathematical concepts Foster and shore up conceptual understanding Engage in mental mathematics leading to efficiency and fluency Engage in mathematical discourse by constructing viable arguments and critiquing the reasoning of others Reason mathematically and prepare for high stakes assessments Move learning beyond correctness by valuing mistakes and discourse and encouraging a growth mindset From trusted authors and experts Eric Milou and John SanGiovanni this teacher friendly resource will give you all the tools and tips you need to reinvent those critical first five or ten minutes of math class for the better **Math**

**Workshop Essentials** Rusty Bresser,Caren Holtzman,2018-08 **Collecting, Counting and Measuring** Megan Murray,2006 It Makes Sense! Melissa Conklin,2010 Ten frames are a model to help students efficiently gain and develop an understanding of addition and subtraction The classroom tested routines games and problem solving lessons in this book use ten frames to develop students natural strategies for adding numbers and fit into any set of state standards or curriculum Provided by publisher Human Factors and Voice Interactive Systems Daryle Gardner-Bonneau,1999 Human Factors and Voice Interactive Systems highlights the importance of human factors in speech technologies and presents and demonstrates the use of human factors principles methods techniques and tools in the design of speech enabled applications Included is coverage of automatic speech recognition synthetic speech and interactive voice response systems Some chapters are devoted to specific applications of speech technology and other chapters are either issue oriented or provide a comprehensive view of human factors knowledge and lessons learned in a specific applications area This book places special emphasis on interactive voice response IVR devoting seven of its fourteen chapters to both speech enabled and traditional touch tone based IVR applications Other chapters emphasize speech recognition application development natural language processing synthetic speech and the use of speech technology in assistive devices for people with disabilities to further the goal of universal access to information technology for all *Challenging Children to Think when They Compute* Calvin J.

Irons,1992      *Proceedings* International Technical Communications Conference,1974  
**of the American Institute of Homoeopathy** American Institute of Homeopathy,1905  
**Foundations: History-Social science. Science** Faye Ong,2008

**Transactions of the ... Session**  
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This book delves into Number Sense Routines Number Sense Routines. Number Sense Routines Number Sense Routines is a crucial topic that must be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Number Sense Routines Number Sense Routines, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
    - Chapter 1: Introduction to Number Sense Routines Number Sense Routines
    - Chapter 2: Essential Elements of Number Sense Routines Number Sense Routines
    - Chapter 3: Number Sense Routines Number Sense Routines in Everyday Life
    - Chapter 4: Number Sense Routines Number Sense Routines in Specific Contexts
    - Chapter 5: Conclusion
  2. In chapter 1, this book will provide an overview of Number Sense Routines Number Sense Routines. This chapter will explore what Number Sense Routines Number Sense Routines is, why Number Sense Routines Number Sense Routines is vital, and how to effectively learn about Number Sense Routines Number Sense Routines.
  3. In chapter 2, the author will delve into the foundational concepts of Number Sense Routines Number Sense Routines. This chapter will elucidate the essential principles that need to be understood to grasp Number Sense Routines Number Sense Routines in its entirety.
  4. In chapter 3, this book will examine the practical applications of Number Sense Routines Number Sense Routines in daily life. This chapter will showcase real-world examples of how Number Sense Routines Number Sense Routines can be effectively utilized in everyday scenarios.
  5. In chapter 4, the author will scrutinize the relevance of Number Sense Routines Number Sense Routines in specific contexts. The fourth chapter will explore how Number Sense Routines Number Sense Routines is applied in specialized fields, such as education, business, and technology.
  6. In chapter 5, this book will draw a conclusion about Number Sense Routines Number Sense Routines. This chapter will summarize the key points that have been discussed throughout the book.
- The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. This book is highly recommended for anyone seeking to gain a comprehensive understanding of Number Sense Routines Number Sense Routines.

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