

Let's Start with a Story!

Using Story Context to Ignite a Deep Understanding of Fractions and Decimals

Grades 3-5

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What are the benefits of teaching math through literature?

- Engages students
- Purpose to learn: "When are we ever going to use this?"
- Supports problem-solving skills by exploring story situations
- Encourages talk and collaboration
- Helps students make sense of skills and concepts
- Makes math memorable
- Energizes the classroom

Literature Examples

Math Skill	Children's Literature	Math Lesson Idea
Fraction notation: the meaning of the numerator and denominator	<i>Full House</i> by Dayle Ann Dodds	Explore the meaning of numerator and denominator as students model the inn as each guest checks in.
Fraction comparison – simple comparisons (e.g., same numerator or same denominator)	<i>Pizza Mouse</i> by Michael Garland	Create pizza models to explore fraction comparison: Which is greater $\frac{1}{2}$ or $\frac{1}{4}$ pizza?
Fraction comparisons – varied ways to explore fractions (e.g., benchmarks, models, common denominators)	<i>Sweet Potato Pie</i> by Kathleen Lindsey	Explore fraction comparisons by comparing the amounts of each ingredient collected for the sweet potato pies.
Multiplying a whole number by a fraction	<i>Jalapeno Bagels</i> by Natasha Wing	Multiply a whole number by a fraction to enlarge the recipe Pablo uses to bring bagels to school for International Day.
Adding fractions with unlike denominators	<i>Picture Pie</i> by Ed Emberley	Explore adding fractions with unlike denominators by creating art with circles cut into various fractional parts. Determine the value of your art by adding the value of each part.
Dividing a unit fraction by a whole number	<i>Born and Bred in the Great Depression</i> by Jonah Winter	Solve fraction division problems related to sharing food during the depression.
Understanding decimals to the hundredths	<i>If the World Were a Village</i> by Michael J. Smith	Visualize decimals to the hundredths by creating models to show real data about the world.

Ordering decimals to the thousandths	<i>Roberto Clemente: Pride of the Pittsburgh Pirates</i> by Jonah Winter	Explore ordering decimals to the thousandths through data about baseball batting averages.
Adding decimals	<i>Tia Isa Wants a Car</i> by Meg Medina	Explore addition of decimals to the hundredths related to saving money.
Adding or subtracting decimals	<i>A Gift for Amma: Market Day in India</i> by Meera Sriram	Explore addition and subtraction of decimals as you add or subtract the cost of items bought at the market.

*All lesson examples come from the *Math by the Book* series (Heinemann, 2022). Additional lessons, problems, writing prompts, and practice games are available for each book.

For More Literature ideas:

Padlet of Grades 3-5 Children’s Literature Related to Math Skills/Concepts

<https://padlet.com/sueoc46/who7w8089bm6r6k2>

Padlet of K-5 Culturally Diverse Children’s Literature with Math Connections

<https://padlet.com/georginarivera123/2ygfo12jusaomm7s>

To interact with colleagues or gather more ideas:

Join our Facebook community focusing on teaching K-5 math

- Join the *Math in Practice/Math by the Book* Facebook Group

Teacher Resource Books by Sue O’Connell
Published by Heinemann (www.heinemann.com)

Math by the Book (Heinemann, 2021)

This k-5 series shows ways to teach mathematics through the context of children’s literature. It is filled with lessons that show the power of teaching mathematics through models and math talk. It includes games to practice the math skills, word problems, and lots of talk/writing prompts, along with online resources and video coaching. To learn more, or to download a list of children’s literature, visit the website at www.mathbythebook.com.

Math in Practice (www.mathinpractice.com)

This series is filled with lesson ideas, instructional strategies, practice tasks, and many online printable resources to make teaching K-5 math more meaningful and more fun. There is a book for each grade level K-5 that contains a wealth of grade-specific activities, as well as a *Guide for Teachers* filled with instructional strategies to support greater understanding of math concepts. A *Guide for Administrators* offers tips and strategies for math coaches/administrators. Visit the website at www.mathinpractice.com to view samplers, see videos, and learn more about the series.

Putting the Practices into Action - Implementing the Common Core Standards for Mathematical Practice K-8 with John SanGiovanni

The Standards for Math Practice are the heart and soul of the Common Core State Standards. This book explains each standard in teacher-friendly terms and highlights practical activities to make the standards come alive in classrooms. It contains PLC study group questions and online resources.

***Mastering the Basic Math Facts for Addition and Subtraction*
Mastering the Basic Math Facts for Multiplication and Division
with John SanGiovanni**

Through investigations, discussions, visual models, children’s literature, and hands-on explorations, students explore the math operations, and through engaging, interactive practice achieve fluency with basic facts. A teacher-friendly CD filled with customizable activities, templates, recording sheets, and teacher tools simplifies your planning and preparation. Over 450 pages of reproducible forms are included in English and Spanish translation.

The Math Process Standards Series

Each book in this series is a practical guide for helping students refine their skills in the highlighted math process (problem solving, communication, reasoning, representations, connections). You will find specific teaching strategies and tips to help all students strengthen their skills. Included with each book is a CD filled with teacher tools and customizable student activities to allow you to change names, data, or spacing for a quick way to differentiate instruction within your classroom.

***Introduction to Problem Solving* *Introduction to Communication*
Introduction to Representation *Introduction to Reasoning and Proof*
*Introduction to Connections***

All books in this series are available for Grades PK-2, Grades 3-5, and Grades 6-8.

For more ideas:

Follow Sue on Twitter [@SueOConnellMath](https://twitter.com/SueOConnellMath)

Or visit Sue’s website at: www.qualityteacherdevelopment.com