Pearson 013480208X

Elementary and Middle School Mathematics: Teaching Developmentally

A Comprehensive Guide for PreK-8 Mathematics Educators

Introduction

This reference guide, "Elementary and Middle School Mathematics: Teaching Developmentally," is designed to assist educators in understanding how children learn mathematics and to provide effective methods for teaching PreK-8 math. It emphasizes hands-on, problem-based activities to foster mathematical reasoning and problem-solving skills.
It is particularly useful for elementary teachers transitioning between grade levels and special education teachers working with multiple grades and ability levels. The content aligns with the Common Core State Standards and NCTM's Principles to Actions, incorporating current research and the latest teaching technologies.

Core Pedagogical Principles

The book illustrates foundational principles of how children acquire mathematical understanding. It guides pre-service teachers through developmentally appropriate approaches to integrate problem-based tasks into their classrooms.
Key aspects include:

- Understanding the developmental stages of mathematical learning.
- Implementing hands-on activities that promote deep conceptual understanding.
- Fostering problem-solving skills through engaging tasks.

Instructional Strategies and Practical Application

This section provides concrete strategies for teaching mathematics effectively. It includes examples of real student work to help visualize effective instruction and assessment.
The 10th Edition features:

- Nearly 300 new references reflecting current research and standards.

- Innovative lesson designs and short discussion initiators.
- Discussions on mathematical modeling, aligned with GAIMME Report (COMAP & SIAM, 2016).

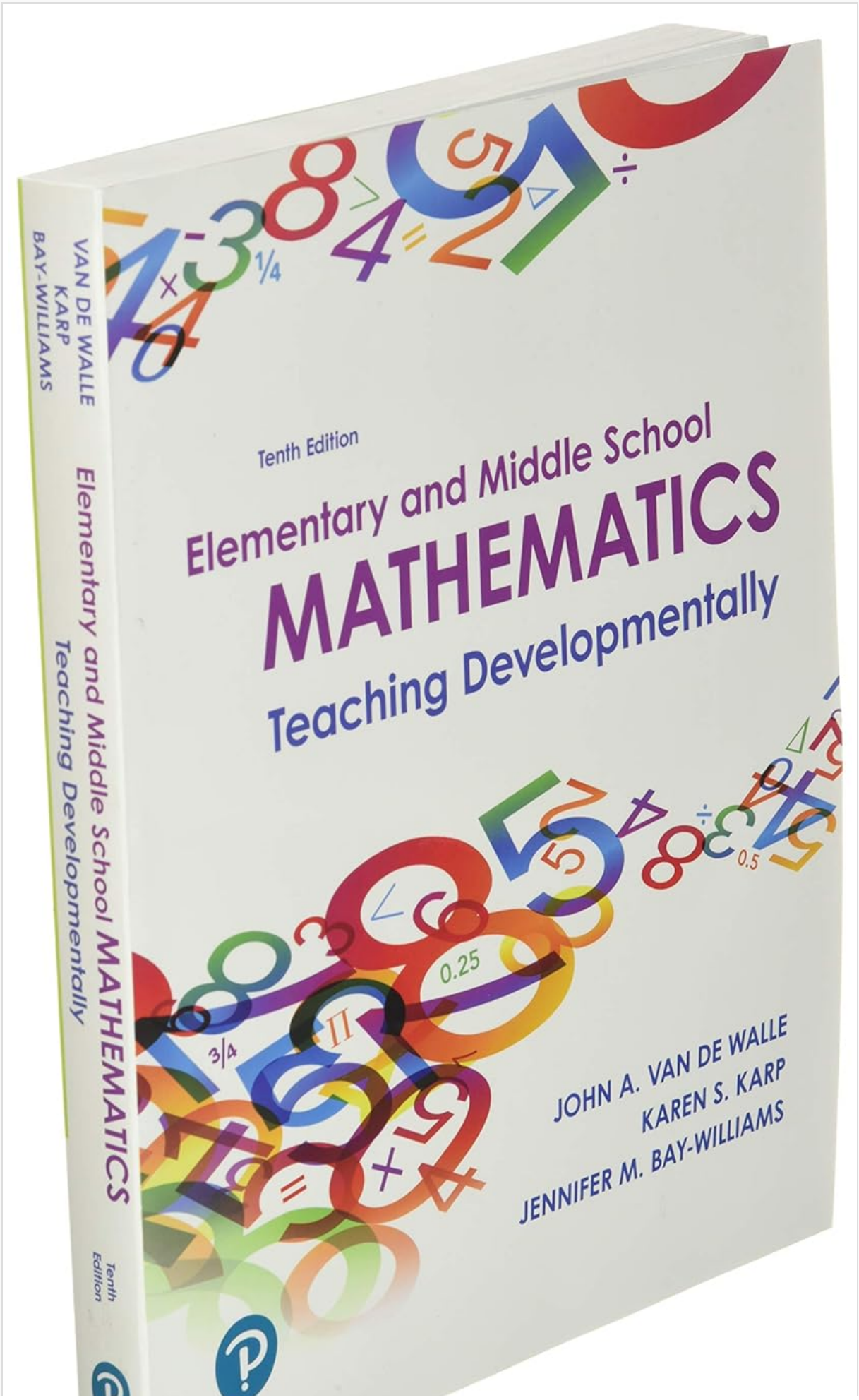

Image: Angled view of the textbook, showcasing its physical form and title.

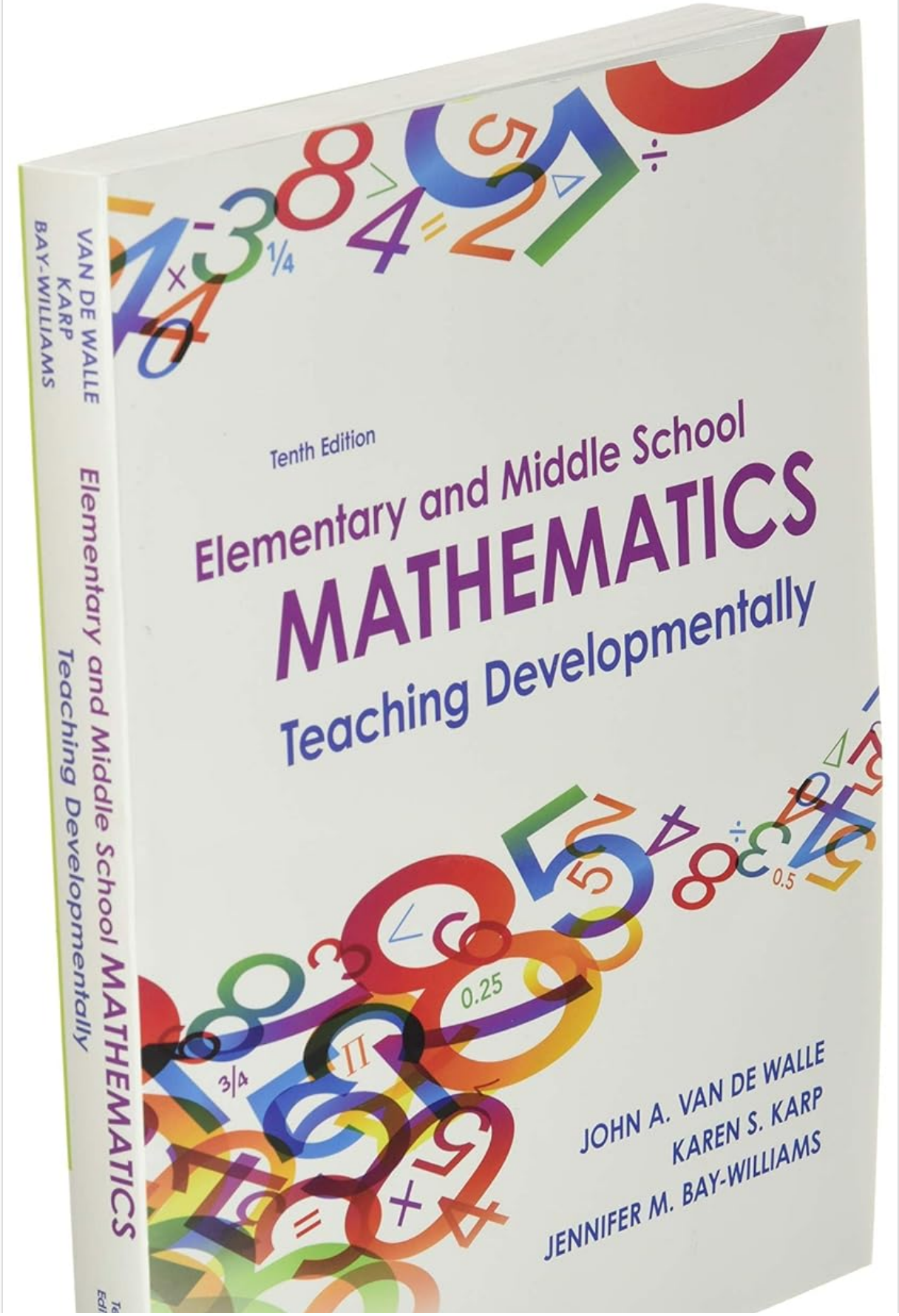

Image: A different angled perspective of the textbook, emphasizing the cover art and title.

Addressing Common Challenges and Misconceptions

The book includes tables outlining common challenges and misconceptions encountered by students in mathematics. This helps educators anticipate and address difficulties effectively, supporting and challenging all learners.

Technology Integration

New technology notes, discussions, tools, and ideas are integrated throughout the book, reflecting the latest advancements in teaching technology and how they can be applied in the mathematics classroom.

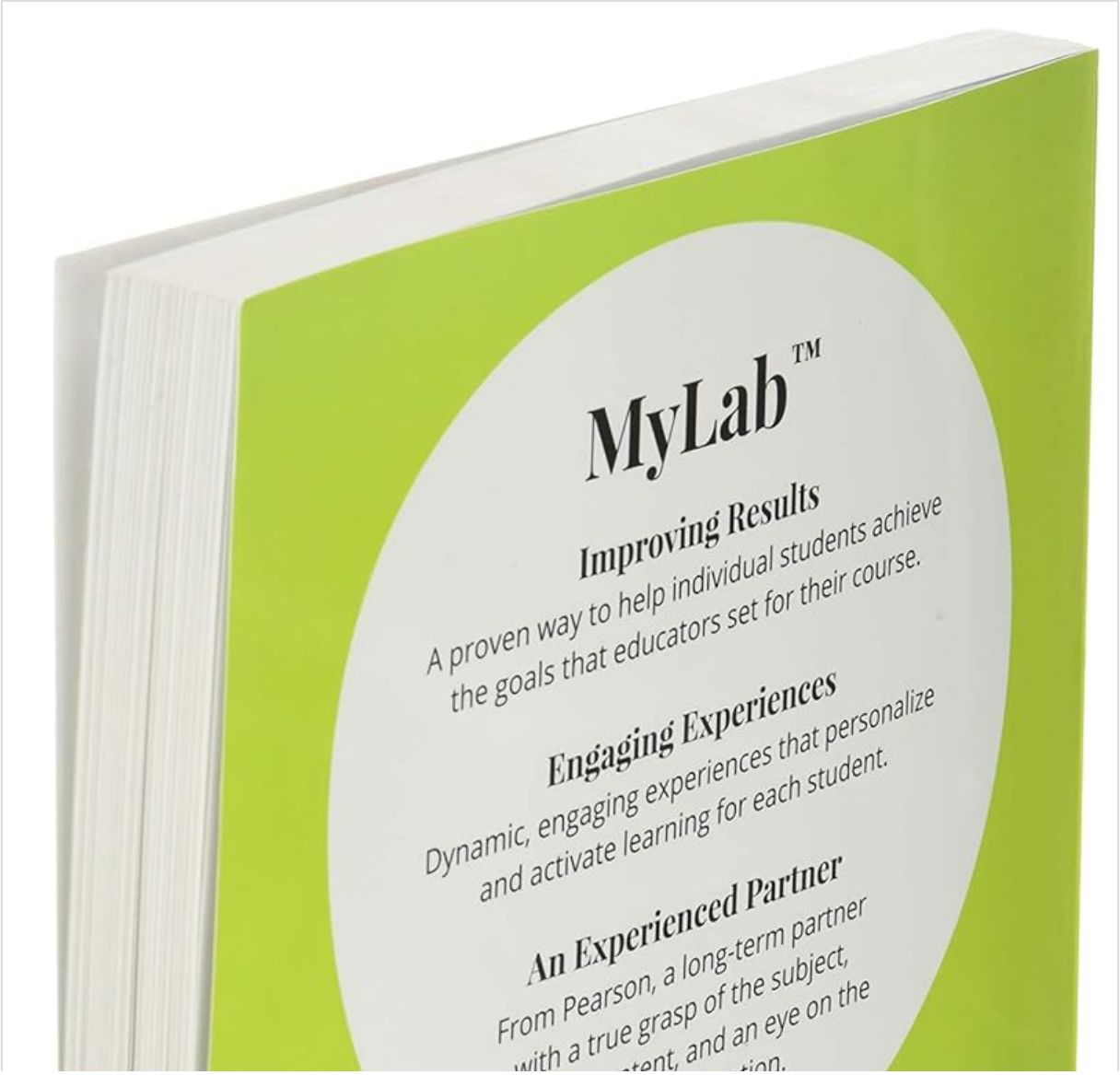

Image: The textbook opened to a page displaying mathematical concepts and instructional content.

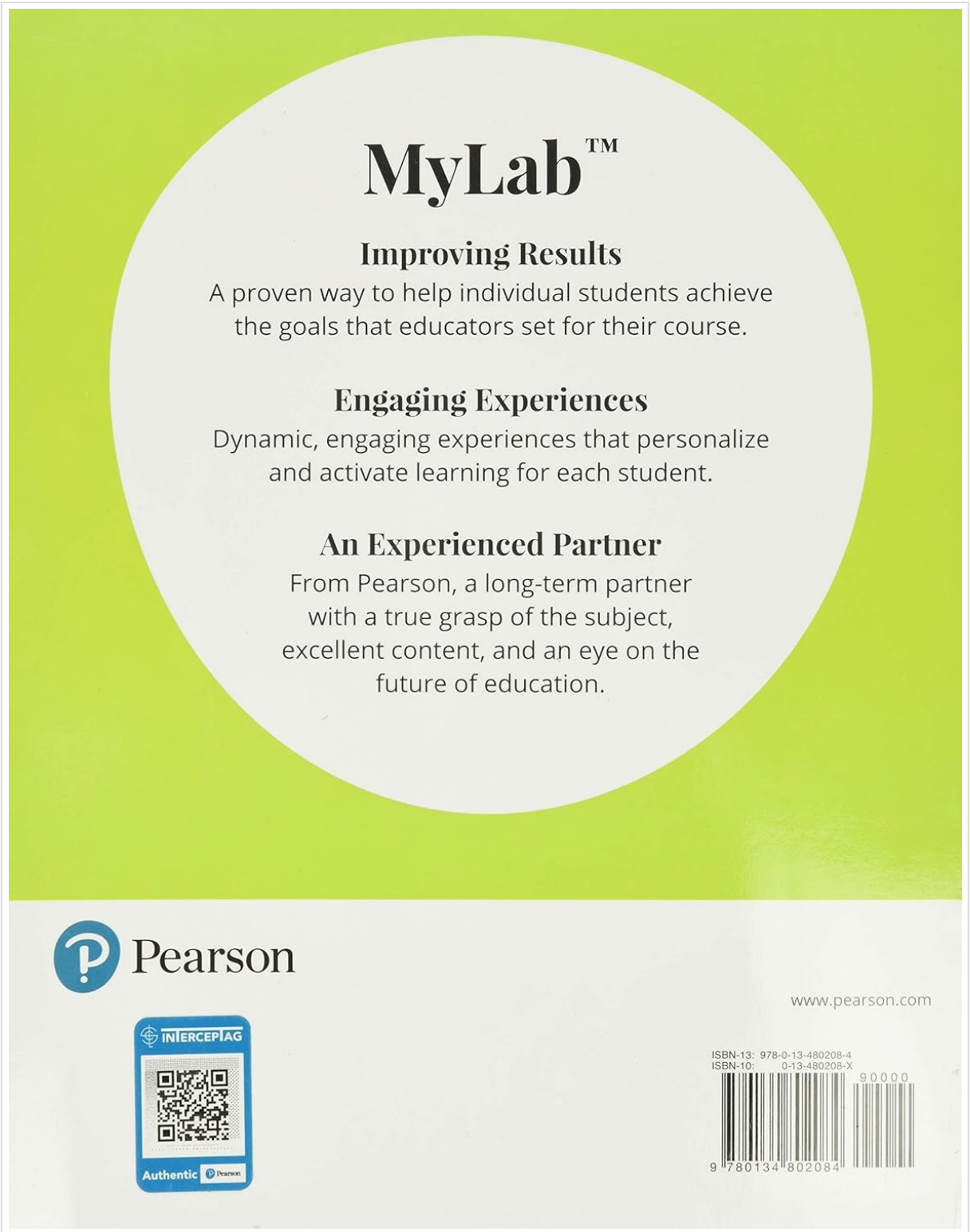

Image: Another view of the open textbook, highlighting diagrams and textual explanations within the content.

MyLab Education Platform

MyLab Education is a teaching and learning platform designed to empower instructors and personalize the learning experience for students. It combines trusted author content with digital tools.
Features of MyLab Education for "Elementary and Middle School Mathematics" include:

- Interactive and authentic application exercises.
- Video examples to illustrate concepts.
- Math practice modules.
- Self-check assessments to build understanding of math content and pedagogy.

Note: MyLab is a standalone product and does not come packaged with the physical textbook unless specified. For package details, refer to ISBNs 0134800346 / 9780134800349.

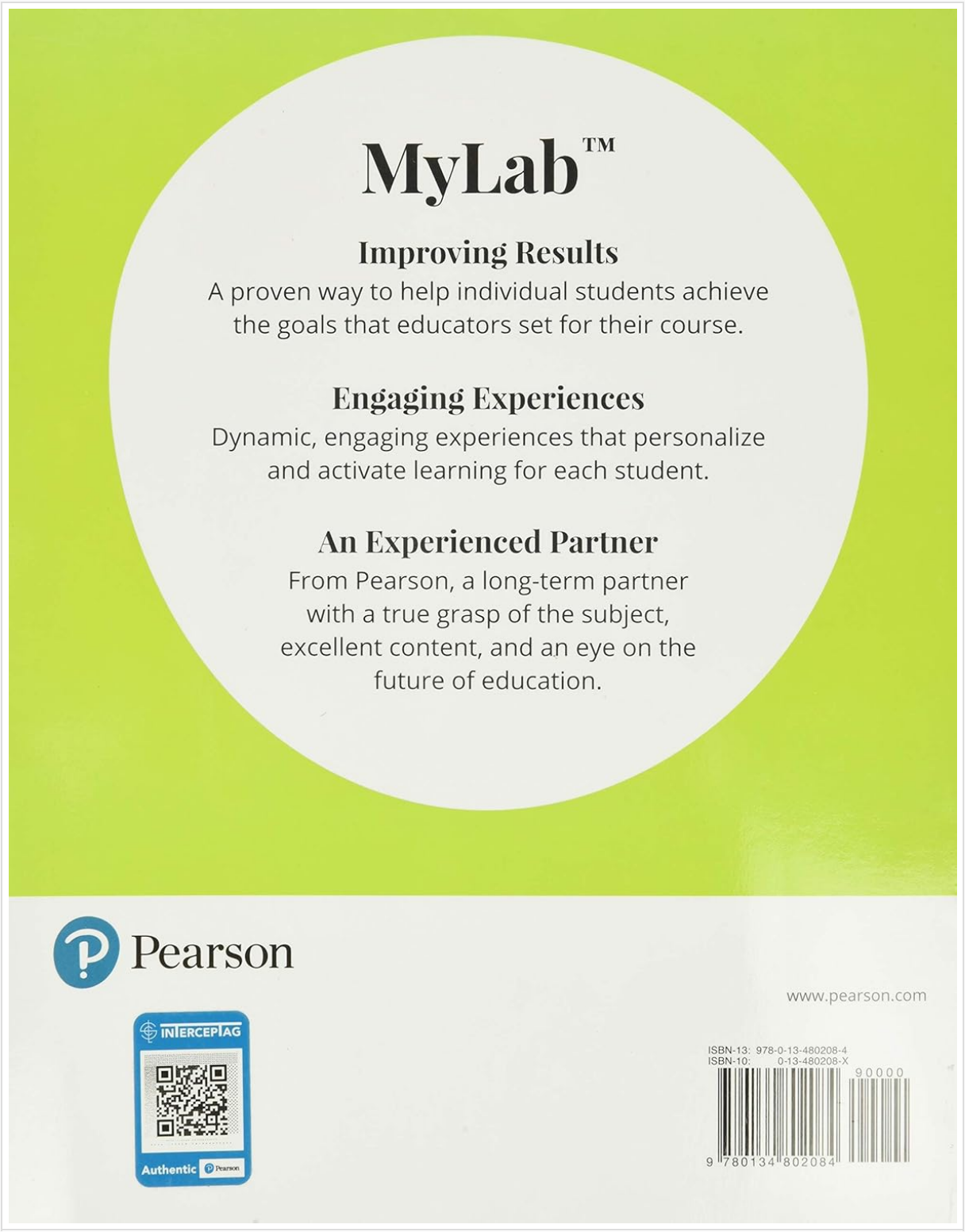

Image: The back cover of the textbook, featuring information about MyLab Education and the ISBN barcode. The QR code links to http://hpgo.co/5NHY4KUIH.

About the Authors

This book is authored by leading figures in mathematics education:

- **Dr. John A. Van de Walle (1943-2006):** Professor emeritus at Virginia Commonwealth University, known for professional development workshops focusing on mathematical reasoning and problem solving. Active in NCTM.

- **Dr. Karen S. Karp:** Professor at Johns Hopkins University, former professor at the University of Louisville. Co-author of several mathematics education books and former NCTM board member. Recipient of the NCTM Lifetime Achievement Award in 2020.
- **Dr. Jennifer Bay-Williams:** Professor at the University of Louisville. Author of multiple book series on mathematics fluency and coaching. Experienced in teaching at elementary, middle, and high school levels.

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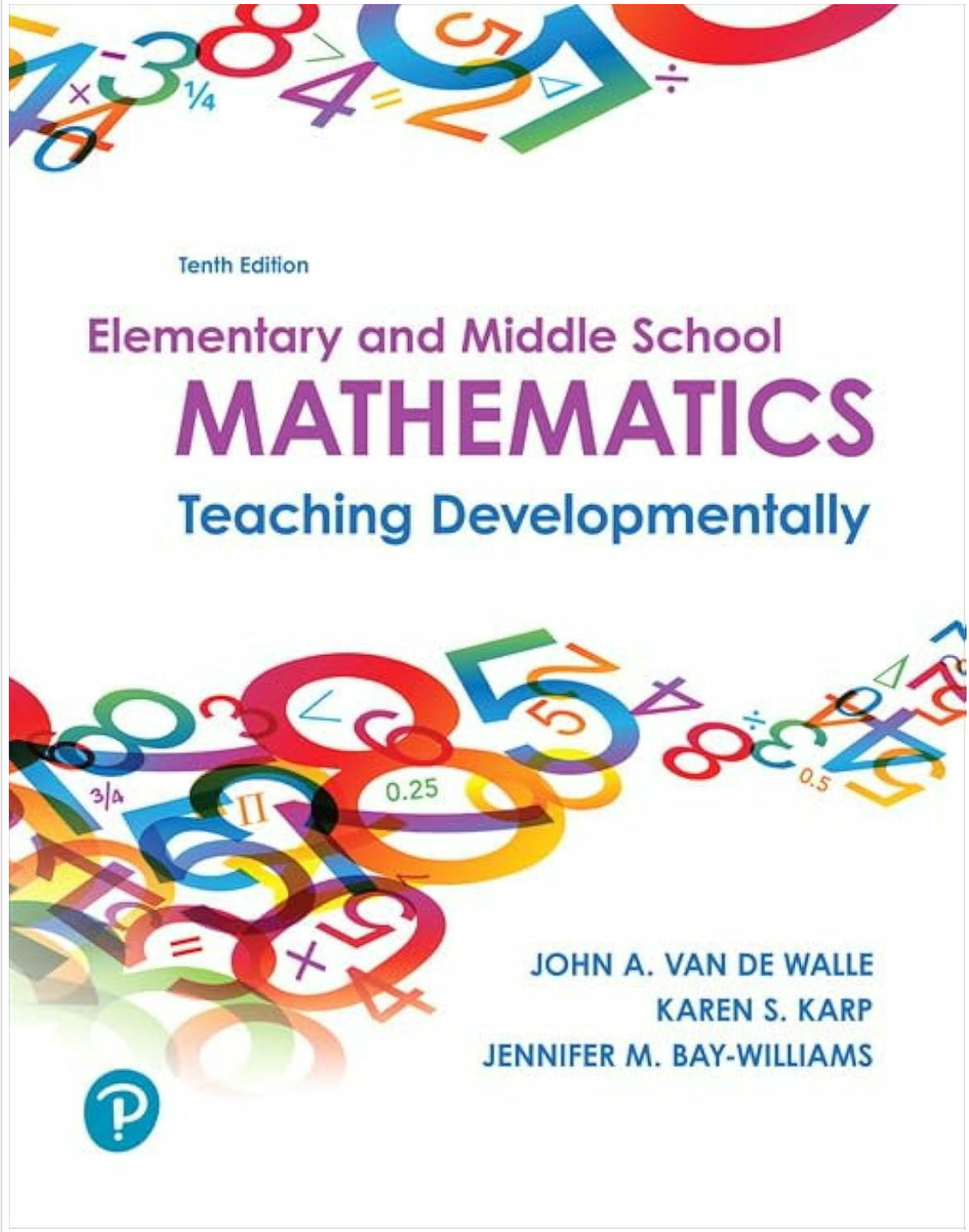

Image: The front cover of the textbook, displaying the title, authors, and publisher logo.

Additional Resources

This book reflects and integrates key educational standards and research:

- Common Core State Standards (CCSS)
- National Council of Teachers of Mathematics (NCTM)'s Principles to Actions
- Guidelines for Assessment & Instruction in Mathematical Modeling Education (GAIMME) Report (COMAP & SIAM, 2016)

For further information on MyLab Education or Pearson products, please visit the official Pearson website.