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# Elementary and Middle School Mathematics: Teaching Developmentally (7th Edition)

Van de Walle, John A.; Karp, Karen and Bay-Williams, Jenny

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## DESCRIPTION

*Elementary and Middle School Mathematics: Teaching Developmentally* (7<sup>th</sup> ed.), by John A. Van de Walle, Karen Karp, and Jenny Bay-Williams, focuses on learning mathematics to teach mathematics. Twenty-three (23) chapters are divided into two major sections:

- Teaching Mathematics: Foundations and Perspectives
- Development of Mathematical Concepts and Procedures

The first section develops the core ideas of learning, teaching, planning, and assessment. In addition, perspectives on mathematics for children with diverse backgrounds and the role of technology are discussed. The second section focuses on pedagogical strategies and problem-based activities that support every major content area in the PreK-8 mathematics curriculum. Designed to help teachers understand mathematics and become confident in their ability to teach the subject to children, the second section serves as the application of the core ideas in section 1. Chapters 8 through 23 are designed to help teachers develop pedagogical strategies and to serve as a resource for teaching concepts and procedures on the following topics:

- Early Number Concepts and Number Sense
- Operations
- Basic Facts
- Whole-Number Place-Value
- Whole-Number Computation
- Estimation
- Algebraic Thinking
- Fraction Concepts
- Computation with Fractions
- Decimal and Percentage Concepts and Computation
- Proportional Reasoning
- Measurement
- Geometry
- Data Analysis
- Probability
- Exponents, Integers, and Real Numbers

## STAGE 1 LEADERSHIP DEVELOPMENT

*Elementary and Middle School Mathematics: Teaching Developmentally* (7<sup>th</sup> ed.), by John A. Van de Walle, Karen Karp, and Jenny Bay-Williams, supports stage 1 leadership development of specialists working to know and model the Teaching and Learning Principle. Each chapter in section 2 provides a framework for them to use, working independently or with other specialists, in developing Indicator 2: *Every teacher implements research-informed best practices and uses effective instructional planning and teaching strategies*. Specialists in the role of coaching wishing to develop their own understanding of content and/or pedagogy on specific mathematical topics will find these chapters (8-23) extremely valuable. Begin by reading the opening comments in the chapter and reflecting on the big ideas given and the Mathematics Content Connections. As you read the chapter, be sure to work through each of the activities and problems given. Each time you encounter a *Pause and Reflect* prompt, take the time to complete the activity. Each time you encounter a myeducationlab™ prompt, take the time to follow the directions to use the resources in myeducationlab™. You will find videos and other resources to enhance your understanding.

After reading and completing the activities in the chapter, be sure to spend some time writing and discussing the reflection prompts under *Writing to Learn* and *For Discussion and Exploration*. For those interested in further study of the topic, recommended readings are provided including articles, books, and online resources. Groups working together might use an expert group protocol to share these resources.

## STAGE 2 LEADERSHIP DEVELOPMENT

*Elementary and Middle School Mathematics: Teaching Developmentally* (7<sup>th</sup> ed.), by John A. Van de Walle, Karen Karp, and Jenny Bay-Williams, supports stage 2 leadership development of specialists in the role of coaching. A stage 2 specialist working to collaborate and implement the Teaching and Learning Principle will find this book valuable. Chapter 1 is a great starting point for specialists to use with teachers in developing Indicator 3: *Every teacher participates in continuous and meaningful mathematics professional learning to improve his or her practice*. Specialists can facilitate a discussion on topics from Chapter 1 including *Principles and Standards* from NCTM and ideas from *Mathematics Teaching Today* on necessary shifts to the classroom environments that allow students to develop mathematical understanding. For those looking for prompts to promote discussion, exploration, and writing, the end of each chapter includes a reflection section.

The reflections on chapter 1 will guide teachers to use results from data, emphasize NCTM content standards appropriate for their grade band, describe mathematical processes, and identify six shifts in the classroom environment including:

1. Equal opportunity to learn to all students
2. A balanced focus on conceptual understanding and procedural fluency
3. Active student engagement in mathematical processes
4. Well-equipped learning centers including technology
5. Balanced assessment
6. Mathematical authority based on sound reasoning and mathematical integrity

With a strong foundation from the work with chapter 1, specialists may continue to facilitate professional learning opportunities with teachers in a similar manner using the remaining chapters in section 1.