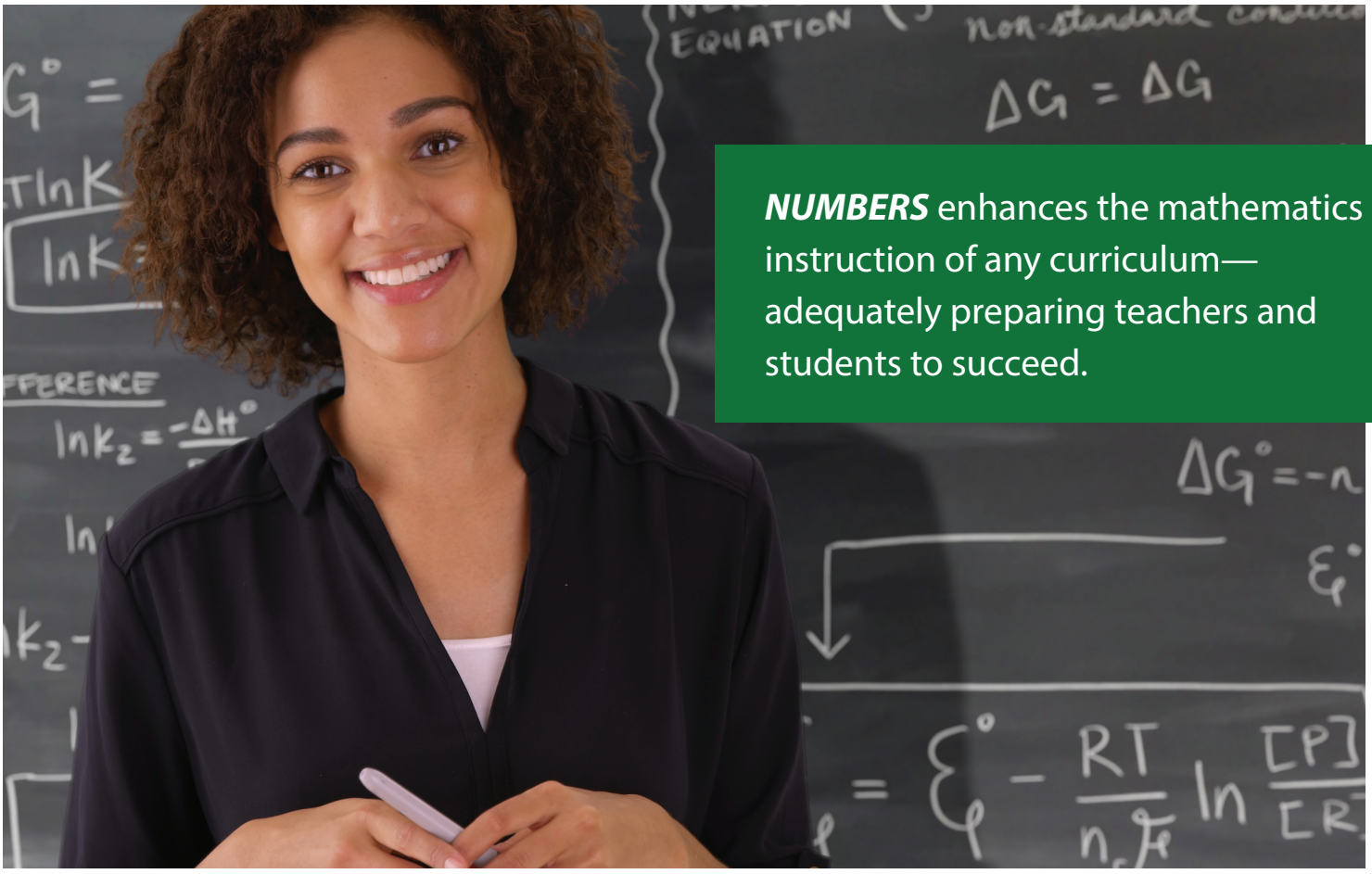
NUMBERS

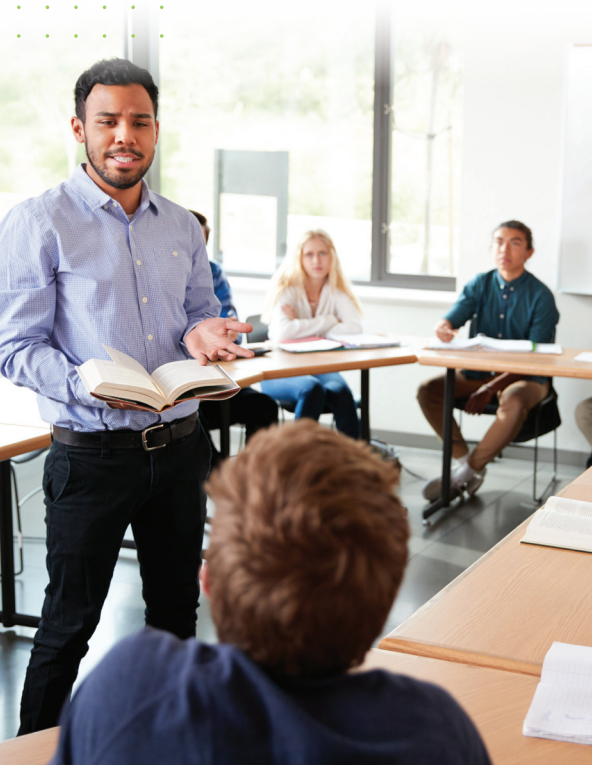
PROFESSIONAL DEVELOPMENT FOR MATH EDUCATORS

Grades K–8



NUMBERS enhances the mathematics instruction of any curriculum—adequately preparing teachers and students to succeed.

Supporting Standards-Based Mathematics Instruction for Elementary and Middle School Teachers



NUMBERS provides educators the ideal blend of theory, domain-specific background knowledge, and classroom application immediately impactful to improving mathematics instruction across grades K–8.

Designed for systemic change and sustainable improvement, ***NUMBERS***:

- Equips teachers with deep understanding of high-level instructional processing tasks
- Provides teaching techniques to create the foundation for standards-based instruction
- Fosters meaningful classroom discussions
- Incorporates more problem-solving, including high-level tasks
- Is interactive and hands on
- Is offered in five domains:
  1. Number Sense (K–5)
  2. Geometry and Measurement (K–5)
  3. Fractions and Decimals (3–6)
  4. Ratios and Proportions (6–8)
  5. Algebraic Thinking (6–8)

NUMBERS GRADE BANDS

K	1	2	3	4	5	6	7	8
NUMBER SENSE								
GEOMETRY AND MEASUREMENT								
			FRACTIONS AND DECIMALS					
						RATIOS AND PROPORTIONS		
						ALGEBRAIC THINKING		

NUMBER SENSE (K–5)	GEOMETRY AND MEASUREMENT (K–5)	FRACTIONS AND DECIMALS (3–6)	RATIOS AND PROPORTIONS (6–8)	ALGEBRAIC THINKING (6–8)
A sense of numbers begins shortly after birth. This module begins with a review of important preschool development milestones, learning about numbers and operations, and concludes with division and the concept of remainders in addition to problem solving type and structure.	At times, measurement and geometry clearly overlap. At others, they call for separate skills such as proportionality when converting inches to feet and visualizing congruent parts. This module addresses both with applications to real-world contexts.	Developing competence in fractions and decimals involves a number of concepts that precede operations on these numbers.	Ratios are a significant shift for students because of the relationship between quantities. They can be part-to-part or part-to-whole relationships. This module tackles misconceptions that students exhibit as they move into ratios and proportional thinking.	Traditional instruction focuses almost exclusively on teaching students procedures. This module presents a rich picture of algebraic thinking, connecting algebra to math in earlier grades.

NUMBERS Professional Development

- Creates the foundation for standards-based instructional planning to ensure instruction consistently addresses learning standards
- Makes math instruction more comprehensible by clearly defining the starting point and the ending point of linear skills and illustrating how rich, initial instruction sets a critical foundation for subsequent instruction
- Yields a deeper, more flexible understanding of math
- Enhances the mathematics instruction of any curriculum

Flexible Training Delivery

NUMBERS provides maximum flexibility for any school system through on-site offerings that can be combined to create a customized solution.

On-Site Professional Development

- Two days per module
- Nationally certified trainers
- Printed training material

In-Classroom Coaching

- Integrate ***NUMBERS*** strategies into any math curriculum
- Incorporate ***NUMBERS*** strategies into student instruction

Ongoing Implementation Support

- Long-term collaboration
- Support for Professional Learning Communities
- Planning tools
- Assessment tools

NUMBERS Authors

John Woodward, **Ph.D.**, recently retired as professor and dean in the School of Education at the University of Puget Sound. He has written more than 80 chapters and journal articles published in the United States and internationally. In addition to *TransMath*®—an intervention curriculum for low-achieving middle school math students—he has coauthored four technology-based instructional programs. He has acted as the principal or coprincipal investigator for a number of significant research grants from the U.S. Department of Education. He began his academic career codirecting a nonprofit research institute that focused on bilingual education, instructional interventions, technology-based instruction in math and science, and models for professional development. He served as chair of the Institute of Education Science's WWC Practice Guide, *Improving Mathematical Problem Solving in Grades 4 through 8*.

Michele Douglass, **Ph.D.**, is the president of MD School Solutions, Inc., a company that contracts with school districts on content and pedagogy with teachers and leaders. She has her doctorate in curriculum and instruction. Her experience ranges from math instructor to director of curriculum and instruction at Educational Testing Services.

Mary Stroh, **M.S.**, is coauthor of *TransMath*. She began her research career as a systems engineer for Electronic Data Systems (EDS). In the late 1990s, she was a research assistant on federally funded intervention projects in mathematics for students with disabilities, and project coordinator and curriculum developer on two federally funded research grants from the U.S. Department of Education, Office of Special Education Programs.

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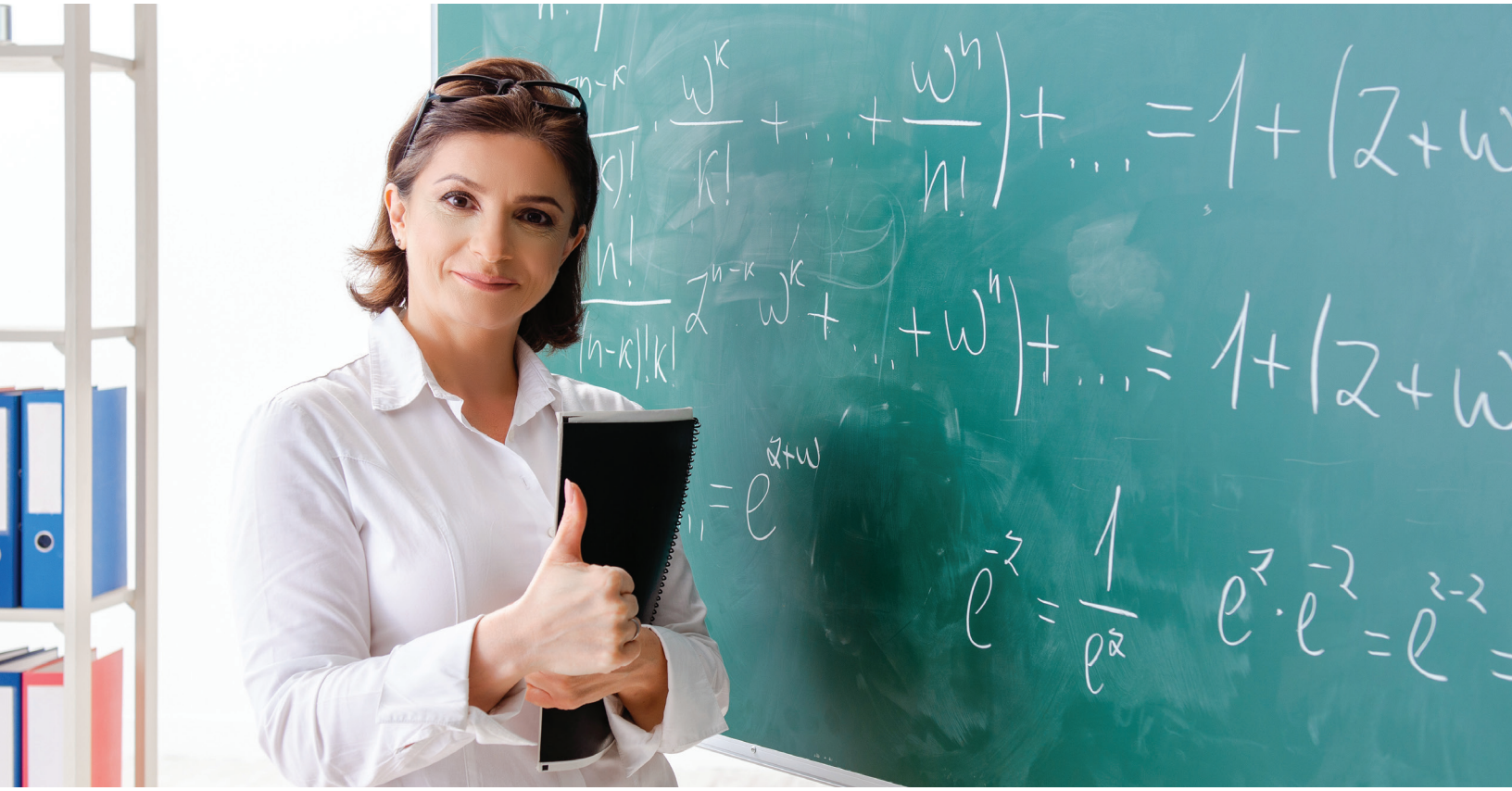

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