WestEd
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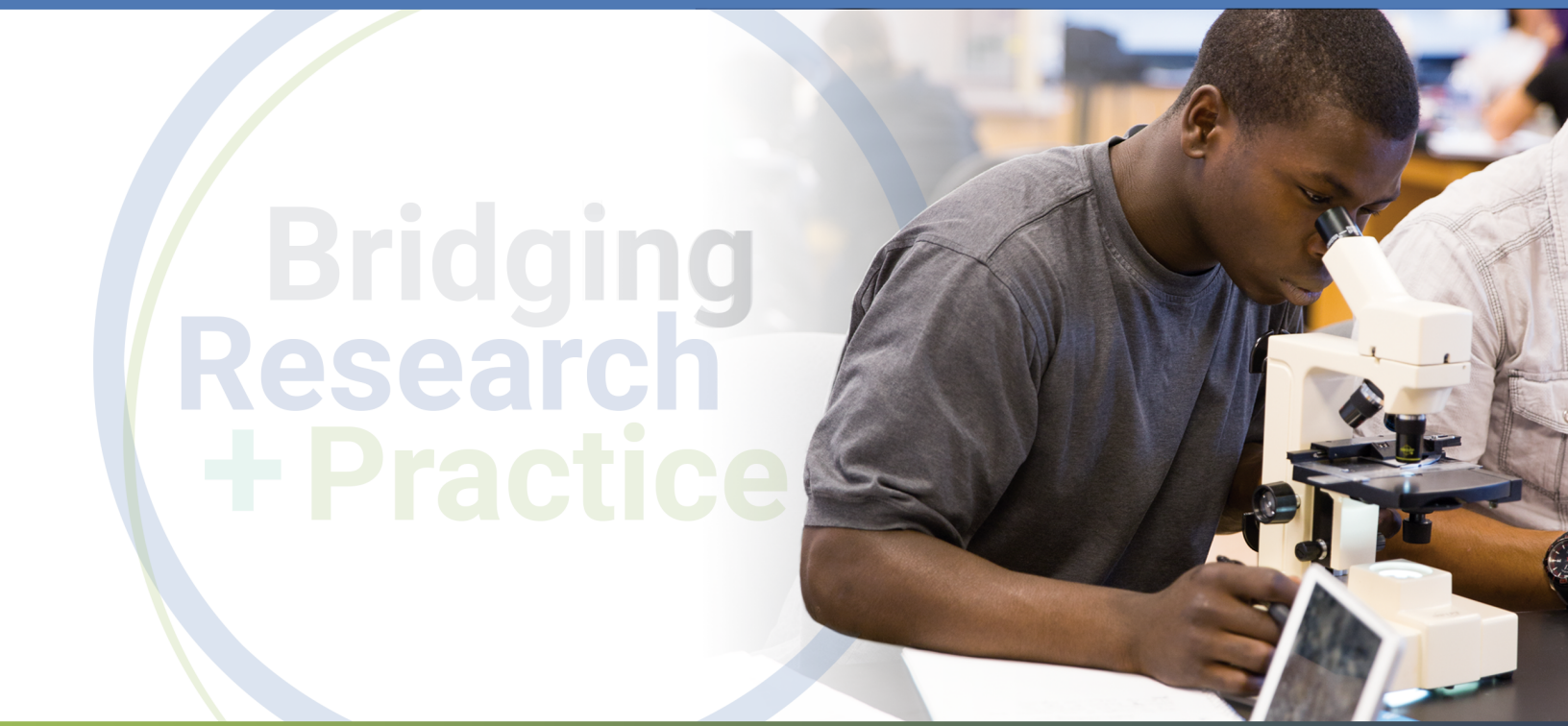
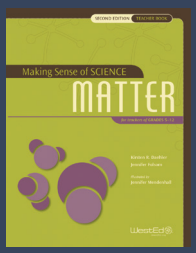
Science & Mathematics

2017–2018 RESOURCES & SERVICES



FEATURED RESOURCES

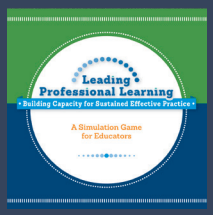


Making Sense of SCIENCE: Matter for Teachers of Grades 5–12, Second Edition

PAGE 22

Learning and Teaching Geometry: Video Cases for Mathematics Professional Development, Grades 6–12

PAGE 17



Leading Professional Learning: Building Capacity for Sustained Effective Practice, A Simulation Game for Educators

PAGE 16

Visit **WestEd.org** for Resources and Professional Services

Supporting Science and Mathematics

SOLUTIONS FOR SCHOOLS AND DISTRICTS

"WestEd is committed to the belief that all students should succeed in our schools and that all learners should thrive in our communities, no matter what circumstances they were born into."

— Glen Harvey, WestEd CEO

Well-prepared teachers play an important role in students' success. And with more rigorous college- and career-readiness standards, developing science and mathematics content knowledge and academic literacy is more important than ever for both teachers and students.

WestEd offers resources and services for teachers and students in K–12 classrooms. Our curricula, books, and professional learning courses and workshops feature engaging, standards-based academic content, as well as instructional strategies that build academic literacy skills as an integral part of subject-matter learning.

For example, WestEd's Making Sense of SCIENCE facilitation academies and teacher courses are specifically designed to build a scientific way of thinking in teachers and students. Rigorous studies have shown that students whose teachers participate in Making Sense of SCIENCE courses outperform other students by more than 40 percent.

Learning and Success

According to national research studies, our *Math Pathways & Pitfalls* K–8 Curriculum has also been successful in increasing students' achievement on standardized tests. The curriculum was designed with built-in support for teachers, and lessons that are aligned to college- and career-readiness standards in relevant domains.

What WestEd Offers

For districts and schools seeking professional learning opportunities for staff, WestEd provides both comprehensive and focused supports that can help achieve success.

Learn more about WestEd resources, services, and research at **WestEd.org/areas-of-work**

Highlighted Services

STARTING ON PAGE 4

- Math Pathways & Pitfalls
- Making Sense of SCIENCE
- Aim for Algebra Institute
- Algebraic Thinking in College- and Career-Ready Standards Workshops
- Improving Mathematics Teaching
- Learning to Lead Mathematics Professional Development
- Geometric Transformations Workshops
- Making Mathematics Accessible to English Learners
- K–12 Alliance NGSS Science Institutes
- Next Generation Assessment: Science
- Assessment-Centered Teaching
- Partnership for the Assessment of Standards-Based Science
- Pepper: Common Core Online Professional Development for Teachers
- Teachers as Learners
- Teaching-Learning Collaborative
- STEM Education: Formative and Summative Evaluation Services
- Engineering for Elementary Students

This catalog also introduces an array of publications and resources that can be used either on their own or as supporting material with our services, starting on page 15.

Math Pathways & Pitfalls Implementation Modules Institute: Boost K–8 Student Mathematics Understanding and Achievement

Boost K–8 students' — including English learners' — mathematical understanding and achievement. Learn to implement *Math Pathways & Pitfalls* (MPP) research-based principles with both MPP lessons and your own textbook lessons.

Who Will Benefit

- K–8 Teachers, including teachers of English learners

What You Will Learn

Five implementation modules lead teachers through key foundational MPP principles.

Each module, listed below, shows how its corresponding principle is integrated into each MPP lesson, and how to incorporate the teaching practices into any math lesson.

Each module is offered as a one-day institute. Teachers may participate in all five, or any combination, of the institutes. Note: Module 1 is a prerequisite for modules 2–5.

- Module 1: Building Mathematical Discussions
- Module 2: Making Sense
- Module 3: Confronting Pitfalls
- Module 4: Visualizing and Connecting
- Module 5: Capturing Key Ideas

> Aha! My students wouldn't talk or show their work. After the third MPP lesson, I couldn't believe the difference. They wanted to show their ideas, they were willing to be challenged, and they thought deeply about the mathematics. These are 6th graders!
>
> — Kim Kean, 6th Grade Teacher, Hayward Unified School District, CA

LEARN MORE AT
WestEd.org/service/math-pathways-pitfalls-institute

CONTACT INFORMATION
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510.302.4249

Making Sense of SCIENCE: Transformative Professional Learning That Connects Science, Teaching, and Literacy

Making Sense of SCIENCE (MSS) professional learning empowers teachers, staff developers, and educators with the knowledge and skills needed to engage learners and increase achievement in the science classroom and beyond.

Who Will Benefit

- Preservice and K–12 Classroom Teachers
- Science Leaders and Staff Developers
- Administrators and Curriculum Specialists
- Schools, Districts, and State Science Networks

What You Will Learn

MSS provides a variety of transformative professional learning pathways for science teachers and leaders that:

- Engage teachers in collaborative adult-level learning experiences that foster the deep content knowledge and strong pedagogical skills needed to effectively implement engaging and impactful student-driven learning
- Equip leaders with materials, knowledge, and techniques to facilitate high-quality, nationally field-tested professional learning experiences for teachers
- Empower teachers and leaders with tools for planning, implementing, and sustaining a culture of effective and meaningful professional learning

> While I have always been a strong science teacher, Making Sense of SCIENCE has changed the way I teach. Each course I participated in unfolded the content in a way that not only pushed my thinking, but also uncovered the challenges that my students have in understanding complex concepts. This combined with the rich conversations around examining student work and literacy connections has made Making Sense of SCIENCE one of the best professional development experiences, and for that matter overall learning experiences, I have ever had.
>
> — Wendy Pierce, Teacher, Chief Joseph Middle School, Bozeman, MT, and Presidential Awardee in Secondary Science

LEARN MORE AT
WestEd.org/service/making-sense-of-science

CONTACT INFORMATION
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650.381.6407

Camp MSS
Asilomar Resort and Retreat Center
October 2–5, 2017
Register online at WestEd.org/mss

Aim for Algebra Institute: Implement Standards-Aligned Curriculum for Student Success

Learn research-affirmed instructional techniques in mathematics that support implementation of the standards-aligned Aim for Algebra curriculum, aimed at student success in algebraic concepts. Our on-site institute is tailored to your needs.

Who Will Benefit

- Teachers of algebra, algebra intervention, and algebra readiness courses
- After-school, extended day, and summer school algebra teachers
- High school exit exam preparation classes
- District/site personnel responsible for mathematics curriculum and programs

What You Will Learn

- Incorporate effective questioning strategies as you implement conceptually based mathematics lessons
- Orchestrate discourse to build understanding of math concepts essential for success in algebra
- Participate in lessons to model effective implementation of the Aim for Algebra curriculum

Service Details

Participants will learn the following 12 content-specific modules, which can be accessed as a complete set, or individually, or as replacement materials, allowing teachers to provide students a variety of experiences in regular, intervention, or readiness algebra classes: Signed number operations; number theory for algebra; exponents; variables and expressions; rational numbers; equations and formulas; ratios and proportions; patterns; coordinate plane; proportional reasoning; inequalities; and data and probability.

> I found the materials easy to use and my students stayed interested longer than they do with 'book work.'
>
> — Eric Larez, Teacher, Wapato Middle School (WA)

LEARN MORE AT
WestEd.org/service/aim-for-algebra-institute

PROFESSIONAL LEARNING
On-site implementation seminars with flexible dates are available for school or district teams. Multiple-day seminars, on-site coaching, and technical assistance services are also available.

CONTACT INFORMATION
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650.381.6429

Algebraic Thinking in College- and Career-Ready Standards Workshop

Deepen your understanding of how concepts of algebra and algebraic thinking develop in the Common Core and other college- and career-ready standards, and learn instructional practices to help students, grades 5–10, think algebraically to solve problems and succeed in algebra.

Who Will Benefit

- Mathematics Teachers, grades 5–10
- Mathematics Coaches and Instructional Leaders
- Staff Developers

What You Will Learn

- Strengthen your understanding of relationships between arithmetic and algebraic reasoning
- Understand how the Standards for Mathematical Practice support algebraic reasoning
- Increase your ability to identify, describe, and foster algebraic reasoning in students
- Prepare and enact lessons that will help students develop conceptual understanding of algebraic ideas while engaging in the Standards for Mathematical Practice

Service Details

Two-day teacher workshops with flexible dates are available for school or district teams of up to 35 people. WestEd mathematics educators and researchers will collaborate with you to plan, customize, and facilitate sessions at your school, district, or regional site.

Sessions are structured around materials from *Learning and Teaching Linear Functions: Video Cases for Mathematics Professional Development*. These video cases were designed to engage teachers in mathematics tasks, analysis of classroom video clips, discussions, readings, and tasks designed as a bridge to teachers' practice.

LEARN MORE AT
WestEd.org/service/algebraic-thinking-workshops

CONTACT INFORMATION
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Improving Mathematics Teaching: Customized Professional Learning

Engage all K–12 students in mathematics learning. Our customized professional learning will help you increase your understanding of student mathematical thinking, consider the implications for your teaching, and improve your classroom practice.

What You Will Learn

- Engage in mathematics problem solving
- Implement instructional strategies to help students achieve college- and career-ready standards in mathematics
- Understand how Standards for Mathematical Practice support students' mathematical reasoning
- Assess student understanding through careful analysis of a set of selected responses from your own students
- Examine and reflect on your own practice and think about the implications of these critical dimensions on your mathematics instruction

LEARN MORE AT
WestEd.org/service/improving-mathematics-teaching

CONTACT INFORMATION
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650.381.6422

Learning to Lead Mathematics Professional Development Institutes

Design and implement quality professional learning experiences for K–12 mathematics teachers, aligned with today's rigorous content standards.

What You Will Learn

- Use video to analyze authentic examples of teachers doing mathematics as learners to develop a repertoire of strategies that you can then apply to your own facilitation of professional learning
- Design mathematics professional learning experiences to achieve specific goals and purposes
- Deepen teachers' mathematics content knowledge for today's rigorous content standards
- Manage effective mathematics discussions in professional development
- Select and use worthwhile mathematical tasks that integrate the Standards for Mathematical Practice in professional development

LEARN MORE AT
WestEd.org/service/learning-to-lead-mathematics-k-12-institutes

CONTACT INFORMATION
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Geometric Transformations Workshops: Teacher Understanding = Student Understanding

Join teachers and teacher leaders who have benefitted from this research-proven approach to teacher learning with a focus on geometric transformations. Learn instructional practices to help students, grades 6–12, understand and succeed in geometry.

What You Will Learn

- Understand what a transformations-based perspective of similarity and congruence means
- Strengthen understanding of relationships among proportionality, similarity, and linearity
- Increase your ability to identify, describe, and foster transformations-based reasoning in your students
- Prepare and enact lessons that will help students engage in mathematical reasoning while developing conceptual understanding of geometric transformations

LEARN MORE AT
WestEd.org/service/geometric-transformations-workshops

CONTACT INFORMATION
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951.682.1070

Making Mathematics Accessible to English Learners: Professional Learning Workshop

Enhance your knowledge and skills to differentiate mathematics instruction and assessment for English learners and other students with diverse learning needs. The end result? Providing universal, equitable access to a rigorous mathematics program for all students.

What You Will Learn

- Tailor instruction in the three-phase model of mathematics instruction to support an inquiry-based approach to teaching mathematics to English learners
- Use a chart of eight essential language skills to plan lessons that include English learners at different language development levels
- Apply academic language during lessons
- Implement seven research-based strategies to scaffold rigorous mathematics content standards
- Design accommodations to create equitable classroom mathematics assessments

LEARN MORE AT
WestEd.org/service/english-learners-mathematics-accessibility

CONTACT INFORMATION
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K–12 Alliance NGSS Science Institutes: Promoting Change and Fostering Excellence

Seeking the highest-quality education aligned to the Next Generation Science Standards (NGSS) for your students, including English learners? Our K–12 Alliance NGSS Science Institute will enhance your content knowledge and pedagogy appropriate to your designated grade span.

What You Will Learn

- K–12 science content knowledge, based on the latest research and appropriate to your classroom grade level/s
- Research-based strategies for building student understanding, including that of English learners
- Instructional and assessment strategies to develop student understanding of the three dimensions of the NGSS
- Tools to create and implement effective instructional design

LEARN MORE AT
WestEd.org/service/k-12-alliance-ngss-science-institutes

CONTACT INFORMATION
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714.894.1445

Next Generation Assessment: Science

Receive expert assistance designing and developing comprehensive next generation science assessment systems.

Service Details

WestEd is a recognized leader in the development of next-generation assessments, working directly with individual states, or with cross-state groups, to develop assessments informed by principles of assessment design and reflect local needs, emphases, and interpretations. We take an evidence-based approach to all stages of development, to ensure that the assessments are valid, fair, and reliable measures of students' science knowledge and abilities. We facilitate an iterative, multiple-stage process, with policymakers and education stakeholders, to gather input in order to develop a customized solution for a comprehensive science assessment system. Both online and paper-and-pencil assessments can be designed.

LEARN MORE AT
WestEd.org/service/next-generation-assessment-science

CONTACT INFORMATION
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435.655.1229

Assessment-Centered Teaching: A Reflective Practice for Science Formative Assessment

Learn and implement science formative assessment practices to find out what your students, K–12, really know. Engage in custom-designed Assessment-Centered Teaching professional learning and enhance teacher quality, and ultimately, student academic success.

What You Will Learn

- Learn about assessments for Next Generation Science Standards and Common Core State Standards in English Language Arts & Literacy in Science
- Design an assessment system for units of instruction
- Learn how to modify assessment and instruction based on student work
- Experience tools and processes that support best practices and professional learning communities
- Become a knowledgeable consumer of assessment programs

LEARN MORE AT
WestEd.org/service/assessment-centered-teaching-science

CONTACT INFORMATION
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714.812.0288

Partnership for the Assessment of Standards-Based Science: Measuring and Ensuring Student Progress in Science

WestEd's Partnership for the Assessment of Standards-Based Science (PASS) service measures K–12 student growth against national and local science standards; and provides reporting and support that helps students make meaningful progress toward science literacy.

What You Will Learn

- Acquire evidence of how well your K–12 students are achieving science literacy as defined by local and national state standards
- Receive valid and reliable evidence to inform and adapt science instruction, and to help guide professional development
- Acquire evidence of achievement and program effectiveness for different groups of students
- Understand your students' achievement in science against local and national standards

LEARN MORE AT
WestEd.org/service/partnership-assessment-standards-based-science

CONTACT INFORMATION
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Pepper: Common Core Online Professional Development for Teachers

Through Pepper, teachers and administrators join a vibrant, growing, online network of educators dedicated to effective implementation of the Common Core. Pepper courses span K–12 and cover core subject areas and topics, including:

- Mathematics
- Science
- English Language Arts
- Writing and Poetry
- Assessment and Reporting
- Digital Citizenship
- English Language Learners
- Leadership
- Special Education

There are 22 full-length courses and 24 minicourses. There is no specific required sequence in which to take the courses, which are designed for people to be able to start where they want and go where they want.

LEARN MORE AT
WestEd.org/service/pepper-common-core-online-teachers

CONTACT INFORMATION
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415.615.3179

Teachers as Learners

Use the Teachers as Learners multimedia kit to conduct customized science and mathematics professional learning for teachers. Strategies emphasize positioning teachers as learners, an approach designed to support student learning.

What You Will Learn

- Explore principles and conditions of effective and transformative professional development
- Examine these principles and conditions "in action" through video clips of professional development strategies
- Learn how to combine and customize effective professional development strategies to promote ongoing teacher learning in your own setting
- Analyze data to identify needs and set goals for your professional development
- Create an initial professional development plan to implement in your setting

LEARN MORE AT
WestEd.org/service/teachers-as-learners-science-mathematics

CONTACT INFORMATION
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Teaching-Learning Collaborative: A Lesson Study to Enhance Student Instruction and Learning in Science

Participate in the Teaching-Learning Collaborative (TLC) and build a community of learners at your school and/or district who can design and implement learning and learning strategies for Next Generation Science Standards based on the quality of K–12 student work.

Who Will Benefit

- K–12 Science Teachers and Science Teacher Leaders in school teams of 3–4 members
- District Curriculum Coordinators responsible for science programs
- Science Professional Developers

What You Will Learn

TLC is recommended, but not required, as a follow-up to the K–12 Alliance Science NGSS Content Institutes. Two levels of training are available:

- Level I is for school teams of 3–4 teachers who want to participate in the lesson study
- Level II is for district science coordinators/teachers on special assignment (TOSAs), or professional learning providers who want to facilitate a TLC

Level I participants will learn:

- The BSCS (Biological Sciences Curriculum Study) 5E Instructional Model for quality student-centered science instruction that aligns with Next Generation Science Standards (NGSS)
- Strategies for creating and implementing effective three-dimensional instructional design aligned to NGSS
- Skills to integrate content, pedagogical content knowledge, differentiated instructional strategies, and use of student work to assess understanding and modify instruction

Level II participants will learn:

- All of the above for the Level I participants
- Facilitation skills to coach the Teaching-Learning Collaborative teams locally

LEARN MORE AT
WestEd.org/service/teaching-learning-collaborative-science

CONTACT INFORMATION
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714.812.0288

STEM Education: Formative and Summative Evaluation Services, PreK–Postsecondary

Whether for a preschool, high school, or graduate school program, WestEd can provide actionable formative and summative results that will benefit your audiences. WestEd evaluators and your program staff will work together to develop evaluation questions, methodology, and a timeline customized to your needs and goals for your STEM education program. In addition, you will receive:

- The best configuration of evaluation staff for your program
- Candid participant feedback that tells you what you need to know for your STEM evaluation program moving forward
- Written reports that will address your audience well, from using correct STEM terminology and measurement metrics to including insightful quotations from your participants
- Actionable formative and summative results well-tailored to your audiences

LEARN MORE AT
WestEd.org/service/stem-education-evaluation-pre-k-postsecondary

CONTACT INFORMATION
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Engineering for Elementary Students: Custom Teacher Workshops

Engage your elementary school students in interactive, critical thinking, and problem-solving engineering classroom activities. Participate in a custom Engineering Is Elementary (EIE) workshop to help your students succeed academically.

What You Will Learn

- Understand the difference between technology and engineering
- Learn the EiE Engineering Design Process, a series of steps that engineers follow to come up with a solution to a problem
- Understand the structure of the EiE curriculum and units
- Become an engineer and experience one EiE curriculum unit
- Correlate the Common Core State Standards-English Language Arts to EiE lessons
- Correlate Next Generation Science Standards science and engineering practices to EiE lessons

LEARN MORE AT
WestEd.org/service/engineering-for-elementary-students-custom-teacher-workshops

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Math Pathways & Pitfalls

CARNE BARNETT-CLARKE AND ALMA B. RAMÍREZ, WITH DEBRA COGGINS

This K–8 curriculum helps students tackle stubborn pitfalls head-on and transform them into pathways for learning key topics. In rigorous research studies, *Math Pathways & Pitfalls (MPP)* significantly increased student achievement for diverse students, including English language learners, in all grades tested.

With *MPP* lessons and instructional strategies, teachers can:

- Help students master key mathematical standards
- Support academic language development
- Prevent common pitfalls on homework
- Raise achievement on standardized tests
- Reach diverse students in the classroom, including English language learners

Each book contains everything needed to teach *MPP* effectively, including:

- 20–22 complete lessons
- Teaching manual
- DVD footage of *MPP* in action
- CD with black line masters
- Teacher professional development tasks, activities, and video footage
- Discussion Builders classroom poster

Math Pathways & Pitfalls helps students improve their critical thinking and mathematics skills through uncovering why the obvious answer is sometimes wrong and why the right answer works.

— Henry Phillips, Elementary School Principal

Before using *Math Pathways & Pitfalls*, my special needs children wouldn't speak or participate much in class. But as we went through the lessons in this book, all of my children wanted to shine — and they did shine!

— Linner Maggard Moore, Second Grade Teacher

MORE ONLINE
WestEd.org/mpp

SAMPLE LESSONS
Visit WestEd.org/mpp to download sample lessons and to learn how student exposure to MPP increases mathematics achievement.

DETAILS

Grades K–1: $165.00
320 pages • 2010 • WestEd
978-0-914409-58-8

Grades 2–3: $165.00
352 pages • 2010 • WestEd
978-0-914409-59-5

Grades 4–6: $165.00
368 pages • 2010 • WestEd
978-0-914409-60-1

Grades 6–8: $165.00
368 pages • 2010 • WestEd
978-0-914409-61-8

Leading Professional Learning

Building Capacity for Sustained Effective Practice
A Simulation Game for Educators

KATHERINE STILES, SUSAN MUNDRY, AND CAROL BERSHAD

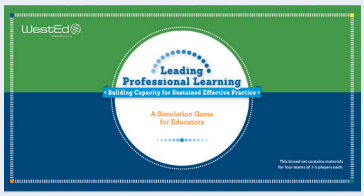
This engaging and non-competitive game helps educators understand how to build a community of practice among school faculty that leads to sustained use of effective practices and improved learning.

Participants collaborate in a simulation of a realistic school for which they serve as the professional learning leadership team. They choose and implement professional learning activities that address the specific needs of their school. Along the way, participants achieve success, but also encounter some obstacles. From both, they learn valuable lessons to apply in their own real-life education settings, discovering how to best support professional learning in their own schools. While the simulation takes place in the context of science education, its principles are transferrable to planning and implementing professional learning in all subject areas.

This boxed set contains enough materials for four teams of 3-5 players, or up to 20 participants. The game can be played by more than four teams at a time by using additional sets.

Leading Professional Learning can be used in graduate and undergraduate courses on education leadership; institutes for education leaders; and local professional learning opportunities for coaches, teacher leaders, and others.

> I have seen firsthand how this simulated experience transforms science and mathematics leaders' ability to discuss complex issues about teaching and learning, use feedback to enable better decision making, see the big picture, and transfer their learning to their own context. It's both engaging and transformative!
>
> — Page Keeley, Director of the Maine Governor's Academy for Science and Mathematics Education Leadership and Past-President of the National Science Teachers Association



MORE ONLINE
Visit WestEd.org/leading-professional-learning

DETAILS
$550.00 • 2016 • WestEd
978-1-938287-38-1

Learning and Teaching Geometry

Video Cases for Mathematics Professional Development, Grades 6–12

NANETTE SEAGO, JENNIFER JACOBS, MARK DRISCOLL, PATRICK CALLAHAN, MICHAEL MATASSA, AND JOHANNAH NIKULA

In this robust set of multimedia resources, facilitators will find everything they need to lead a series of professional development sessions on teaching mathematical similarity based on geometric transformations. In 10 three-hour sessions, participants in the professional development:

- Explore mathematics content
- View, analyze, and discuss video clips of real classrooms
- Compare and contrast issues across video cases
- Make connections to their own instructional practice

The materials feature videos from unstaged classrooms that offer a window into specific and increasingly complex mathematical concepts, student thinking, and pedagogical moves. Aligned with the most current standards, including the Common Core State Standards for Mathematics, the materials engage teachers in learning about similarity, congruence, and transformations and how to teach these key topics.

Learning and Teaching Geometry includes:

- A Facilitator Guide published in print and as an eBook (PDF)
- 10 three-hour sessions (30 hours total of professional learning)
- 27 video clips
- Agendas with detailed notes and mathematical commentary, PowerPoint presentations, embedded assessments, handouts, GeoGebra applets, and more

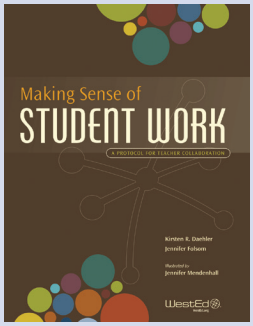
> The Learning and Teaching Geometry professional development materials are beautifully constructed, easy to access, visually appealing, and provide great supports for facilitators.
>
> — Linner Maggard Moore, Second Grade Teacher

DETAILS

$89.95 • 70 pages • Multimedia
2017 • WestEd
978-1-938287-11-4

LEARN MORE AT

WestEd.org/resources/learning-teaching-geometry-foundation-grades-6-12/



Making Sense of Student Work: A Protocol for Teacher Collaboration

KIRSTEN DAEHLER, JENNIFER FOLSOM, AND JENNIFER MENDENHALL

When teachers closely examine words and drawings created during the learning process, they gain a valuable window into their students' thinking. By examining student work, teachers can identify what students understand and where gaps in their understanding can be leveraged as opportunities for improvement. *Making Sense of Student Work* is a self-facilitated protocol, ideal for collaborative groups of 3–24 teachers. It is divided into five two-hour sessions, each with a specific focus — exploring mental models, investigating learning gaps, thinking through instructional next steps, analyzing tasks, and modifying tasks.

> This protocol supports teachers who want to understand what their students know and how they reason so that they can leverage learning in productive ways.
>
> — Linda Darling-Hammond, Professor of Education, Stanford University

MORE ONLINE

Visit WestEd.org/mss for free samples of student work.

DETAILS

Print: $19.95 • 112 pages • 2014
WestEd • 978-1-938287-12-1

eBook: $16.95 • 112 pages • 2014
WestEd • 978-1-938287-21-3

Formative Assessment Task Bank E-Books

KIRSTEN DAEHLER, JENNIFER FOLSOM, CATHY CARROLL, MARDI GALE, JENNIFER MENDENHALL, AND REBECAH BUSSELLE

An ideal complement to WestEd's *Making Sense of Student Work* protocol, this collection of digital formative assessment task banks in science and math are designed to allow students to share their thinking.

These accessible and interesting tasks go beyond facts or simple recall and encourage students to think; require students to decide what knowledge to apply when; can be solved in a number of ways; give students a chance to explain their thinking and ways of figuring things out; and ask students to communicate in several modes. The tasks can be used to augment existing instructional activities.

DETAILS

SCIENCE

Energy: $6.95 • 48 pages • 2014
WestEd • 978-1-938287-16-9

Matter: $ 6.95 • 46 pages • 2017
WestEd • 978-1-938287-18-3

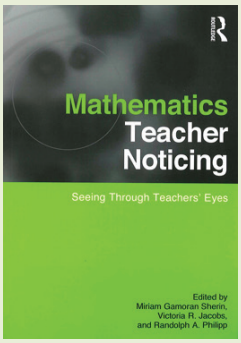
Force & Motion: $6.95
46 pages • 2014 • WestEd
978-1-938287-17-6

Genes & Traits: $6.95
25 pages • 2015 • WestEd
978-1-938287-28-2

MATH

The Number System: $6.95
25 pages • 2014 • WestEd
978-1-938287-19-0

Equations & Expressions: $6.95
25 pages • 2014 • WestEd
978-1-938287-20-6

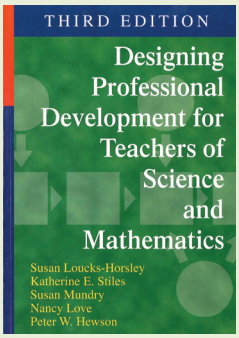


Mathematics Teacher Noticing: Seeing Through Teachers' Eyes

EDITED BY MIRIAM GAMORAN SHERIN, VICTORIA R. JACOBS, AND RANDOLPH A. PHILIPP

In the midst of all that is happening in a classroom, where do mathematics teachers look, what do they see, and what sense do they make of it? WestEd's Nanette Seago and Catherine Carroll co-wrote key chapters in this groundbreaking collection that examines research on the particular type of noticing done by teachers — how teachers pay attention to and make sense of what happens in the complexity of instructional situations.

DETAILS
$59.95 • 250 pages • 2010
Routledge • 978-0-415-87863-0



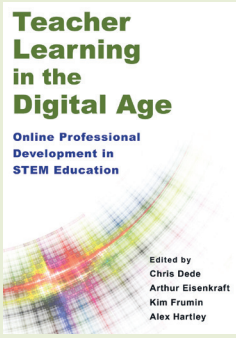
Designing Professional Development for Teachers of Science and Mathematics, Third Edition

SUSAN LOUCKS-HORSLEY, KATHERINE E. STILES, SUSAN MUNDRY, NANCY LOVE, AND PETER W. HENSON

Updated and expanded, this classic guide demonstrates how to design professional development for teachers that is directly linked to improving student learning. The book reflects current research on professional development design, underscores the influence of beliefs and local factors on professional development design, and illustrates a wide range of professional development strategies.

SAMPLE CHAPTERS
Read sample chapters at WestEd.org/designingprofessionaldevelopment

DETAILS
$43.95 • 424 pages • 2010
Corwin • 978-1-4129-7414-1



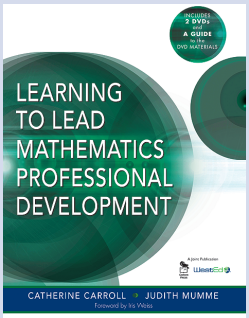
Teacher Learning in the Digital Age: Online Professional Development in STEM Education

EDITED BY CHRIS DEDE, ARTHUR EISENKRAFT, KIM FRUMIN, AND ALEX HARTLEY

What are efficient and effective ways to leverage technology to support teacher learning in STEM education? Find out in this timely volume examining exemplary models of online and blended teacher professional learning. From video-based courses to curriculum support platforms and MOOCs (massive open online courses) for educators, this volume illustrates the broad range of innovative initiatives that have emerged to support pre-service and in-service STEM teachers in formal and informal settings.

DETAILS
$34.00 • 304 pages • 2016
Harvard Education Press
978-1-61250-897-9

TO ORDER > 888.293.7833
or WestEd.org/resources



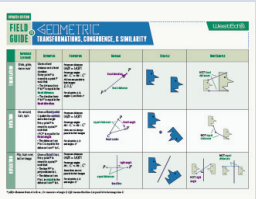
Learning to Lead Mathematics Professional Development

CATHERINE CARROLL AND JUDITH MUMME

Designed for mathematics professional development leaders, this multimedia kit helps build facilitation skills, content knowledge, and pedagogy to design and implement effective staff development programs. The case-based kit includes a user's guide, as well as 2 DVDs with 44 seminars arranged into 7 modules containing notes, video clips, participant work, PowerPoint slides, and more. The modules focus on mathematics and facilitation skills, reflect research on adult learning, and model a community of practice.

PROFESSIONAL LEARNING
Watch sample videos from this multimedia kit at WestEd.org/leadingmathpd

DETAILS
$218.00 • 104 pages • 2007
Corwin • 978-1-4129-1504-5



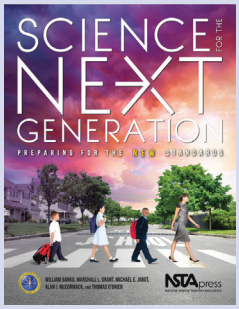
Field Guide to Geometric Transformations, Congruence, and Similarity, Updated Edition

NANETTE SEAGO, PATRICK CALLAHAN, MARK DRISCOLL, JENNIFER JACOBS, AND JOHANNAH NIKULA

Aligned with Common Core State Standards, this first-of-its-kind illustrated and laminated guide helps both secondary school teachers and students understand geometric transformation, similarity, and congruence. Developed by the Learning and Teaching Geometry Project, this resource features definitions of important terms; color coordination of key phases; diagrams with examples and non-examples; examples of precise and imprecise language; and properties for translation, rotation, reflection, dilation, congruence, and similarity.

PROFESSIONAL LEARNING
See page 9 to learn about teacher workshops related to this resource.

DETAILS
$4.95 • 2 laminated pages • 2012
WestEd • 978-1-938287-09-01



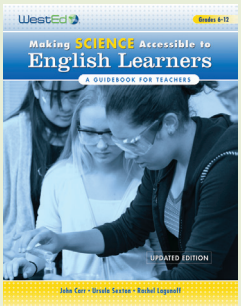
Science for the Next Generation: Preparing for the New Standards

EDITED BY WILLIAM BANKO, MARSHALL L. GRANT, MICHAEL E. JABOT, ALAN J. MCCORMACK, AND THOMAS O'BRIEN

Providing a rationale, a framework, and model lessons for implementing the Next Generation Science Standards, this guide is a necessary resource for any K–5 teacher or administrator who is responsible for bringing these new standards into the classroom. WestEd's Cynthia Greenleaf, co-director of the Strategic Literacy Initiative at WestEd, co-wrote a key chapter on literacy as a tool for scientific inquiry and science as a means for enhancing literacy.

SAMPLE CHAPTERS
Read a sample chapter at WestEd.org/resources/nextgenscience

DETAILS
$34.95 • 390 pages • 2013
NSTA Press • 978-1-936959-26-6



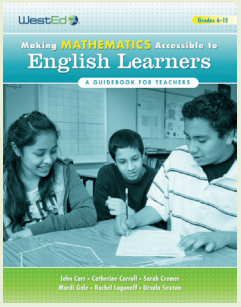
Making Science Accessible to English Learners: A Guidebook for Teachers, Updated Edition

JOHN CARR, URSULA SEXTON, AND RACHEL LAGUNOFF

This best-selling guidebook is designed to help middle and high school science teachers connect with English language learner students. The book offers practical guidance, powerful and concrete strategies, and sample lesson scenarios that can be implemented immediately in any science class. Topics include understanding language development, teaching the language of scientists, scaffolding science learning, and applying strategies in the classroom.

SAMPLE CHAPTERS
Read two sample chapters at WestEd.org/makingscienceaccessible

DETAILS
$24.95 • 132 pages • 2007
WestEd • 978-0-914409-40-03



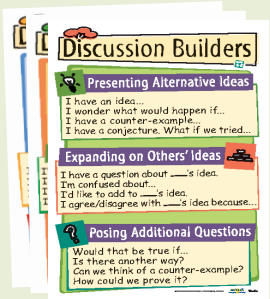
Making Mathematics Accessible to English Learners: A Guidebook for Teachers

JOHN CARR, CATHERINE CARROLL, SARAH CREMER, MARDI GALE, RACHEL LAGUNOFF, AND URSULA SEXTON

Designed for teachers with limited preparation for teaching English learners, this practical guide presents middle and high school teachers with an integrated approach to teaching math content and English language skills, including guidance and tips from research and the field, scaffolding strategies for differentiating instruction, and more.

SAMPLE CHAPTERS
Read a sample chapter at WestEd.org/makingmathaccessible

DETAILS
$24.95 • 128 pages • 2009
WestEd • 978-0-914409-68-7



Discussion Builders Posters and Teaching Guides: K–1, 2–3, and 4–8

CARNE BARNETT-CLARKE AND ALMA RAMÍREZ

Discussion Builders posters scaffold progressively more complex reasoning across the grades and increasingly complex use of academic language. Grades K–1 help students present, expand upon, and reflect on important ideas. Grades 2–3 prompt students to use these skills at more sophisticated levels. Grades 4–8 strengthen students' complex reasoning, including their abilities to consider counterexamples and conjectures and to justify options.

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Visit WestEd.org/discussionbuilders to learn about the Discussion Builders Workshop.

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Grades 2–3: $16.95 • 2005
WestEd • 978-0-914409-45-8

Grades 4–8: $16.95 • 2005
WestEd • 978-0-914409-46-5

SET: $40.00
(Save 15% by ordering the set.)

Making Sense of SCIENCE

KIRSTEN R. DAEHLER, JENNIFER FOLSOM, AND MAYUMI SHINOHARA

Making Sense of SCIENCE (MSS) is a comprehensive set of teacher professional development courses that focus on core topics of K–12 earth, life, and physical science. Rigorous studies show that MSS improves students' science achievement — especially for English language learners and students with poor literacy skills.

The materials include everything needed to effectively lead MSS courses:

- Facilitator Guide with extensive support materials and detailed procedures
- Teacher Book with teaching, science, and literacy investigations, along with a follow-up component, *Looking at Student Work* (available as a separate book; see *Making Sense of Student Work* on page 18)
- CD with course participation certificates, handouts, and charts

Soon-to-be-published MSS courses include: Organisms, Earth Systems, Weather & Climate, and Plate Tectonics.

> I learned new ways to get kids talking about science in a rich way, ways to analyze student work, and ways to improve my lessons. I also came face to face with some of my own science misconceptions. My teaching practice is changed forever.
>
> — Vicki Baker, National Board Certified Teacher

MORE ONLINE
Visit WestEd.org/mss for more information, or email mss@WestEd.org

PROFESSIONAL LEARNING
Contact Louise DuCray (e: lducray@WestEd.org, t: 650.381.6407) to learn about professional learning related to this resource.

DETAILS

Genes & Traits: $249.95 • 2015 WestEd • 978-1-938287-27-5

Matter: $249.95 • 2017 • WestEd 978-1-938287-40-4

Force & Motion: $249.95 • 2011 WestEd • 978-0-914409-77-9

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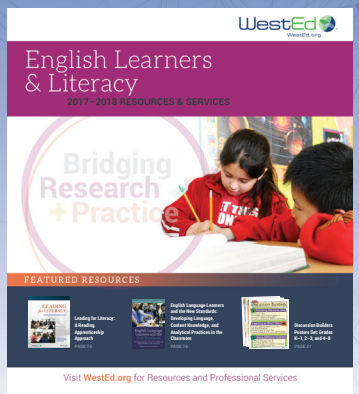

Also Available

WestEd offers additional resources and services that draw on the best from research and practice. Download our School & District Improvement and English Learners & Literacy catalogs for more information.

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