WestEd

Science & Mathematics

2019 / PROFESSIONAL SERVICES & RESOURCES

• FEATURING •

And more inside.

Math Pathways & Pitfalls Implementation Modules Institute

Boost K–8 Student Mathematics Understanding and Achievement

Increase K–8 students' — including English learners' — mathematical understanding and their ability to articulate that understanding. Participate in our Math Pathways & Pitfalls Implementation Modules Institute.

"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 (CA) Unified School District

Visit **WestEd.org/mpp** for information about MPP's impact on students' mathematics achievement.

Who Will Benefit

- K–8 Teachers, including teachers of English language learners

What You Will Learn

Participants will learn Math Pathways & Pitfalls strategies to help their students overcome pitfalls, boost learning of key mathematics standards, and develop academic language. The institutes also highlight strategies for working with diverse learners, including English learners.

Five implementation modules lead participants 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

What's Included

Module 1 includes a Math Pathways & Pitfalls book with lessons and teaching guides at your grade band. The book includes a Discussion Builders poster, pre-post assessment items, and DVD for teachers and students.

Modules 2–5 use materials from Module 1, as well as teachers' own textbook materials, to develop comprehensive lesson models for use in the classroom. All modules include a binder and the slides used during the institute.

LEARN MORE AT
WestEd.org/mpp or contact us at 888.293.7833 or pd@WestEd.org

Making Sense of SCIENCE

Building Stronger Science Education Communities with Transformative Professional Learning and Needs-Based Technical Assistance

Making Sense of SCIENCE empowers teachers, leaders, administrators, and all science educators with the knowledge and skills needed to engage learners and increase achievement in 21st century science classrooms and beyond.

> **"While I have always been a strong science teacher, *Making Sense of SCIENCE* has changed the way I teach.... 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 how **Making Sense of SCIENCE** is making a difference. Visit **WestEd.org/when-teachers-learn-students-succeed**

Who Will Benefit

- Preservice Teachers
- K–12 Classroom Teachers
- NGSS Implementers
- Science Leaders and Staff Developers
- Administrators and Curriculum Specialists
- Schools, Districts, County Offices of Education, and State Science Networks

What You Will Learn

Making Sense of SCIENCE's (MSS's) goal is to provide transformative professional learning that empowers teachers and leaders with the knowledge, skills, and tools needed to support a culture of productive learning. In addition to providing technical assistance to schools and districts that draw on a suite of research-proven products and services, MSS designs custom learning pathways 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

LEARN MORE AT
WestEd.org/mss or contact us at 888.293.7833 or pd@WestEd.org

Aim for Algebra Institute

Implement Standards-Aligned Curriculum for Student Success

Learn research-affirmed instructional techniques designed for student success in mathematics and that support implementation of the standards-aligned *Aim for Algebra* curriculum. Our on-site institute is tailored to your needs.

Our professional development providers were part of the development of *Aim for Algebra* and are experts in the successful implementation of the program, as well as the instructional strategies to achieve success.

Who Will Benefit

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

What You Will Learn

- 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
- Incorporate effective questioning strategies as you implement conceptually based mathematics lessons

Service Details

Aim for Algebra professional development institutes are held on your site with flexible dates for school or district teams. The on-site institutes take place over three days: an initial two-day implementation seminar and a one-day follow-up later in the year.

Participants will be taught research-affirmed strategies to effectively implement the *Aim for Algebra* curriculum — a coherent set of materials, conceptual in nature, rather than a collection of individual worksheets on isolated topics.

LEARN MORE AT
WestEd.org/aim-for-algebra-institute or contact us at 888.293.7833 or pd@WestEd.org

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.

Three independent evaluations of the video case materials that structure these workshops reported that the materials create a professional culture for teachers in which they reflect upon mathematical ideas and students' thinking and learning on mathematics; and improve teachers' content knowledge and ability to interpret classroom practice.

Who Will Benefit

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

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.

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.

Our workshops are built around video cases that engage teachers and/or leaders in mathematics tasks, analysis of classroom or professional development video clips, discussions, readings, and tasks designed as a bridge to teachers' and leaders' own practice.

Who Will Benefit

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

What You Will Learn

Enhance your understanding, knowledge, and teaching of mathematics, and assess and understand students' mathematical thinking. Specifically, you will:

- Engage in mathematics problem solving
- Learn to 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

WestEd mathematics educators customize a two-day workshop — for both teachers and teacher leaders — to address local needs, adding optional ongoing support through online discussion groups and webinars. Workshops are available for school or district teams of up to 35 people.

LEARN MORE AT
WestEd.org/mathematics-teaching or contact us at 888.293.7833 or pd@WestEd.org

Geometric Transformations Workshops

Teacher Understanding = Student Understanding

Join teachers and teacher leaders who have benefited 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.

A National Science Foundation–funded research study found that WestEd's *Learning and Teaching Geometry* professional development materials led to significant gains in teachers' geometry content knowledge and increases in their students' knowledge.

Who Will Benefit

- Mathematics Teachers, grades 6–12
- Mathematics Teacher Leaders
- Mathematics Teacher Educators

What You Will Learn

Strengthen your knowledge and skills on how concepts of proportionality, congruence, and similarity develop from the perspective of geometric transformations.

This workshop uses video cases (taken from *Learning and Teaching Geometry: Video Cases for Mathematics Professional Development* listed on page 17 in this catalog) that engage teachers in mathematics problem solving, analysis of classroom practice, examination of student work, discussions, readings, and tasks and applets designed as a bridge to teachers' practice. As a workshop participant, you will:

- 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

On-site workshops with flexible dates, and taking place over five days, are available for school or district teams of up to 35 people.

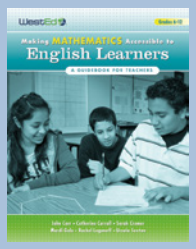
LEARN MORE AT
WestEd.org/geometric-transformations or contact us at 888.293.7833 or pd@WestEd.org

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.

Making Mathematics Accessible to English Learners workshops are unique in their intentional focus on supporting language development within the mathematics classroom.



Buy the book at **WestEd.org/makingmathaccessible**

Who Will Benefit

- Mathematics Teachers grades 6–12 (may include grades 4–5)
- Mathematics Coaches and Instructional Leaders
- Staff Developers

What You Will Learn

WestEd's two-day workshops use the principles and approaches described in *Making Mathematics Accessible to English Learners: A Guidebook for Teachers.*

You will enhance your knowledge and skills to differentiate instruction and assessment for English learners and other students with diverse learning needs, thereby giving all students universal, equitable access to a rigorous mathematics curriculum. Learn how to:

- 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 mathematics lessons
- Implement seven research-based strategies to scaffold rigorous mathematics content standards
- Design accommodations to create equitable classroom mathematics assessments
- Integrate the instructional tools and strategies into "doable" daily pedagogy

Two-day workshops with flexible dates are available for your school or district teams of up to 35 people. We host the workshops at school districts or county offices of education.

LEARN MORE AT
WestEd.org/el-math or contact us at 888.293.7833 or pd@WestEd.org

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? WestEd's K–12 Alliance NGSS Science Institute will enhance your content knowledge and pedagogy appropriate to your designated grade span.

> **"The K–12 Alliance has inspired and challenged me, instilled a confidence I wasn't aware I had. I am more comfortable with not knowing and more willing to say, 'I can try that or I can DO that.'"**
>
> — Lori Holland, Teacher, San Diego City Schools

Who Will Benefit

- K–12 Science Teachers and Teacher Leaders
- Science Professional Developers
- District Curriculum Coordinators responsible for science programs

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 NGSS
- Tools to create and implement effective instructional design
- Skills to integrate content, pedagogical content knowledge, differentiated instructional strategies, and use of student work to assess understanding and modify instruction
- How to integrate science, math, and literacy skills in reading, writing, speaking, and listening

The K–12 Alliance one-week institutes engage elementary and/or secondary school teacher participants in large and small group work, hands-on activities, and laboratory experiences. These institutes are conducted each summer at various California locations and by arrangement with school districts in California.

LEARN MORE AT
WestEd.org/ngss-institutes or contact us at 888.293.7833 or pd@WestEd.org

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 development and enhance teacher quality and ultimately student academic success.

Using the Assessment-Centered Teaching tools and processes to identify assessment and analyze student work enables teachers to become reflective practitioners.

Who Will Benefit

- Teacher Leaders, K–12
- Principals
- School District Administrators
- Science Specialists

What You Will Learn

- Learn about assessments for Next Generation Science Standards and Common Core State Standards-English Language Arts, Science and Technical Subjects
- 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 development communities
- Become a knowledgeable consumer of assessment programs

Service Details

Senior WestEd staff with more than 25 years of experience in science instruction and assessment will facilitate your learning. Assessment-centered teaching is custom-designed to meet your needs and can include:

- Institutes
- Lesson studies
- Grade-level meetings
- Professional learning communities
- Extended services with repeated follow-up and reflection

Note: *There is a minimum three-day program requirement. Professional development takes place at a location specified by the school district.*

LEARN MORE AT
WestEd.org/act-k12 or contact us at 888.293.7833 or pd@WestEd.org

Teaching-Learning Collaborative

A Lesson Study to Enhance Student Instruction and Learning in Science

Build a community of learners at your school and/or district who can design and implement learning strategies for Next Generation Science Standards (NGSS) based on the quality of K–12 student work.

> **"Although it takes a while to prepare for the conceptual lesson, it is well worth it. The evidence is shown in the student work. . . . I now realize that it is paramount to consider the 'big idea' and not just a string of unrelated skills when I plan my future lessons."**
>
> — Heather Glanz, Teacher, Santee (CA) School District

Who Will Benefit

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

What You Will Learn

The Teaching-Learning Collaborative (TLC) is recommended, but not required, as a follow-up to the K–12 Alliance NGSS Science Institutes (see page 9 in this catalog). Two levels of training are available for TLC:

- **Level I** is for school teams of 3–4 teachers who want to participate in the lesson study; spans 4 days
- **Level II** is for district science coordinators/teachers on special assignment, or professional development providers; spans 8 days

Level I participants will learn:

- The Biological Sciences Curriculum Study 5E Instructional Model for quality student-centered science instruction that aligns with NGSS
- Skills to integrate content, pedagogical content knowledge, differentiated instructional strategies, and use of student work to assess understanding and modify instruction
- Strategies for creating and implementing effective phenomenon-based 3-dimensional instructional design

Level II participants will learn all of the above for the Level I participants, as well as facilitation skills to coach the Teaching-Learning Collaborative teams in the local context.

LEARN MORE AT
WestEd.org/teaching-learning or contact us at 888.293.7833 or pd@WestEd.org

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.

> **"EiE is an excellent inquiry-based STEM curriculum that teaches students thinking and reasoning skills needed for success. Built around the engineering design process, EiE teaches kids how to solve problems systematically . . . creating skills, optimism, and attitudes important for their futures. Life is not multiple choice."**
>
> — Laura J. Bottomley, Director, The Engineering Place, North Carolina State University

Who Will Benefit

- Elementary School Teachers
- District and School Administrators who will be supporting teachers' implementation of science and engineering in their classrooms
- Middle School Science Teachers who want to understand how to implement engineering into their science curriculum

What You Will Learn

By combining social-emotional learning with the EiE Engineering Design Process, elementary school classrooms that integrate the EiE curriculum become environments for collaborative problem solving among students. Participate in EiE professional development and you will:

- 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; many times the solution involves designing a product (an object, system, or process) that meets certain criteria and/or accomplishes a certain task
- 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 the Next Generation Science Standards science and engineering practices to EiE lessons

You will receive customized support in the form of workshops: 1- to 2-day workshop plans for teachers; and a 3-day certification workshop for teacher educators.

LEARN MORE AT
WestEd.org/eie-workshops or contact us at 888.293.7833 or pd@WestEd.org

STEM Education

Formative and Summative Evaluation Services, PreK-Postsecondary

In need of rigorous formative or summative evaluation services for your STEM education program? Whether for a preschool, high school, postsecondary school, or informal program, WestEd can provide actionable results that will benefit your audiences.

You will feel like we "get" your project because our evaluators also lead STEM projects of their own. WestEd's evaluators are senior staff members well-grounded in evaluation theory, design, and implementation. Our evaluators are mathematics or science educators and have expertise in professional development, organizational change, and program implementation.

Who Will Benefit

- Education Project Staff, Administrators, and Funders
- Professional Developers
- Projects needing formative feedback through focus groups, observations, surveys, and more
- Projects needing rigorous quantitative studies by staff experienced in What Works Clearinghouse required methods

Service Details

A successful evaluation requires a close relationship between the evaluator(s) and program staff. WestEd evaluators and your program staff will work together to develop evaluation questions, methodology, and timeline customized to your needs and goals for your STEM education program. 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/stem-evaluation or contact us at 888.293.7833 or pd@WestEd.org

Next Generation Assessment: Science

Receive expert, customized assistance designing and developing comprehensive next generation science assessments and assessment systems. Realize the shared vision of a science assessment informed by principles of assessment design and that reflect local needs, emphases, and interpretations.

WestEd has deep instructional and assessment expertise, as well as extensive experience working with federal, state, and local education agencies, and nonprofits (e.g., Council of Chief State School Officers, The College Board), in designing and implementing comprehensive assessment systems.

Who Will Benefit

- National, State, and District Leaders responsible for standards and/or assessment
- Nonprofit Organizations in need of technical support for the design and/or development of new science assessments
- States, Districts, and Schools considering, or in the process of, designing and/or developing new science assessments aligned to state-specific science standards and/or NGSS

What You Will Learn

A recognized leader in the development of next generation assessments, WestEd works with individual states, or with cross-state groups, to develop next generation science assessments that are 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 and developed.

WestEd helps to engage education stakeholders in the design, development, and support of the new science assessments. Our process includes development of key documents such as assessment frameworks and item specifications; innovative item design and prototyping; and item development.

LEARN MORE AT
WestEd.org/next-gen-assessment or contact us at 888.293.7833 or pd@WestEd.org

Math Pathways & Pitfalls K–8 Math Curriculum

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

"*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, Principal, Tyler Skills Elementary School, Stockton, CA

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

This K–8 math 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 learners, in all grades tested.

With *MPP* lessons and instructional strategies, teachers learn to:

- 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

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

To order, call 888.293.7833 or order online at WestEd.org/resources

Leading Professional Learning

Building Capacity for Sustained Effective Practice, A Simulation Game for Educators

KATHERINE STILES, SUSAN MUNDRY, AND CAROL BERSHAD

"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, Author and Past President, National Science Teachers Association, Berwick, ME

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.

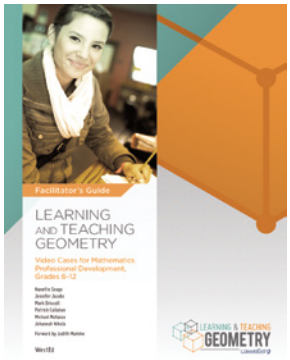
Participants collaborate in a simulation of a realistic school for which they serve as the professional learning leadership team. They choose and implement professional learning activities that address the specific needs of their school. Along the way, participants achieve success, but also encounter 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. *Leading Professional Learning* 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.

$600 • 2017 • WestEd • 978-1-938287-38-1 • LI-17-01

Read this *R&D Alert* article at **WestEd.org/simulation-game** to learn how this game is being used in the field.



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

"The *Learning and Teaching Geometry* professional development materials are beautifully constructed, easy to access, visually appealing, and provide great supports for facilitators."

— From the Foreword, by Judith Mumme, Author of *Learning to Lead Mathematics Professional Development* and former Director of the Researching Mathematics Leader Learning Project

The updated *Field Guide to Geometric Transformations, Congruence, and Similarity* is also available at **WestEd.org/field-guide-geo**

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

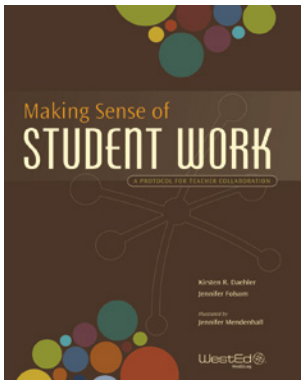
The materials feature videos from unstaged classrooms that offer a window into specific and increasingly complex mathematical concepts, student thinking, and pedagogical moves.

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

$89.95 • 2017 • WestEd • 978-1-938287-11-4



Making Sense of Student Work

A Protocol for Teacher Collaboration

KIRSTEN DAEHLER, JENNIFER FOLSOM, AND JENNIFER MENDENHALL

"Great teachers decide what and how to teach based on what their students already know and think. But making sense of student ideas is complex and challenging intellectual work. 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

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 2-hour sessions, each with a specific focus — exploring mental models, investigating learning gaps, thinking through instructional next steps, analyzing tasks, and modifying tasks.

The *Making Sense of Student Work* protocol provides a framework to help teachers:

- Have evidence-based discussions about students' work and students' thinking
- Examine and come to understand students' ideas and the logic behind these ideas
- Strengthen their abilities to make instructional choices in response to the specific ways students are thinking
- Analyze and improve the formative assessment tasks they use with students

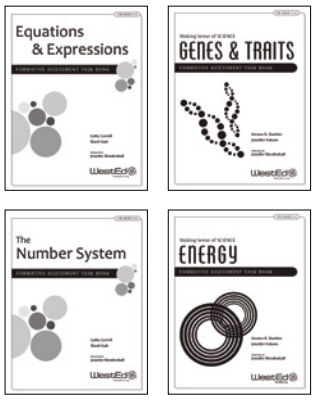
Teachers in a variety of contexts, including formal professional learning communities, weekly grade-level team meetings, and informal teacher-to-teacher collaborations, have successfully used this protocol.

The protocol builds on more than a decade of development and research by the Making Sense of SCIENCE project at WestEd.

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

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

Visit **WestEd.org/mss** for more information about WestEd's evidence-based Making Sense of SCIENCE Courses and related formative assessment task banks.



Formative Assessment Task Bank E-Books

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

Are you looking for ways to augment your existing curriculum with assessment tasks that encourage students, grades 5–12, to think and figure things out? WestEd offers a collection of formative assessment task banks specifically designed to do just that.

Visit **WestEd.org/mssw** for more information about the *Making Sense of Student Work* protocol and teacher professional development.

Formative assessment is an ongoing process that involves gathering and analyzing evidence of students' thinking, then using what is learned to inform instruction. These formative assessment tasks are specifically designed as a tool to allow students to share their thinking.

The 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
- Ask students to communicate in several modes (e.g., words, drawings)
- Are accessible and interesting

These tasks are an ideal complement to WestEd's *Making Sense of Student Work* protocol — a guide that supports groups of teachers collaboratively analyzing and interpreting student work to inform their instruction.

SCIENCE

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

MATTER: $ 6.95 • 46 pages • 2017 • WestEd • 978-1-938287-47-3

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

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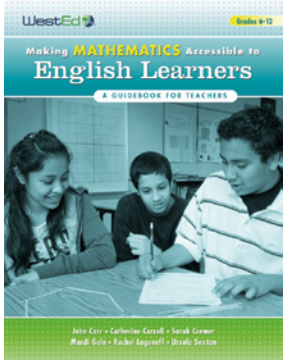

Making Mathematics Accessible to English Learners

A Guidebook for Teachers, Grades 6–12

JOHN CARR, CATHY CARROLL, SARAH WARNER, MARDI GALE, RACHEL LAGUNOFF, AND URSULA SEXTON

"This book's clear, understandable writing style makes complex ideas accessible. The authors explain how teaching strategies that are good for English learners are good for all diverse learners — this principle is the heart of equity."

— Kathlan Latimer, Lecturer, University of California, Davis, CalTeach/MAST Program

This practical book helps upper elementary, middle, and high school mathematics teachers effectively reach English learners in their classrooms. Designed for teachers who have had limited preparation for teaching mathematics to English learners, the guide offers an integrated approach to teaching mathematics content and English language skills, such as guidance on best instructional practices from the field, powerful and concrete strategies for teaching mathematics content along with academic language, and sample lesson scenarios that can be implemented immediately in any mathematics class.

The guide includes:

- Rubrics to help teachers identify the most important language skills at five English language development levels
- Practical guidance and tips from research and the field
- Seven scaffolding strategies for differentiating instruction
- Seven tools to promote mathematical language
- Assessment techniques and accommodations to lower communication barriers for English learners
- Three integrated lesson scenarios demonstrating how to combine and embed these various strategies, tools, techniques, and approaches

Chapter topics include teaching inquiry-based mathematics, understanding first and second language development, teaching the language of mathematics, scaffolding mathematics learning, and applying strategies in the classroom.

$24.95 • 2009 • WestEd • 978-0-914409-68-7

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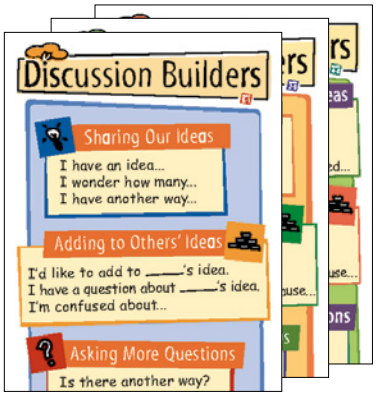

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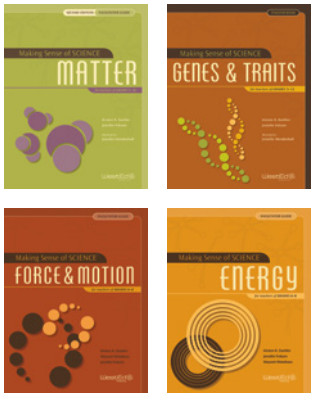

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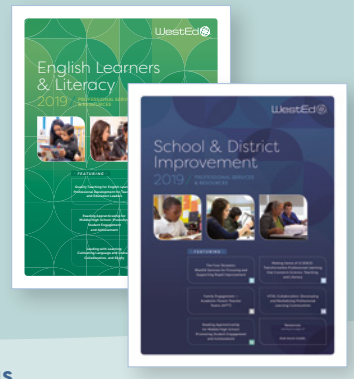

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