



# Understanding Science™ for teaching

## RESEARCH ABOUT MAKING SENSE OF SCIENCE™

Over the past decade, the Understanding Science for Teaching project at WestEd has developed and expanded its Making Sense of SCIENCE™ professional development series, reaching thousands of teachers and staff developers across the country and impacting hundreds of thousands of students. The Making Sense of SCIENCE model for professional development has been shown to be consistently effective in multiple settings with a diversity of facilitators, teachers, and students.

Rigorous research and national field-testing have gone hand-in-hand with the development of Making Sense of SCIENCE. The results offer compelling evidence that this professional development approach strengthens teachers' content knowledge, transforms their classroom practices, and boosts student achievement — especially for low-achieving students, English learners, and students with poor literacy skills (Heller et al., 2010; Heller, 2011).

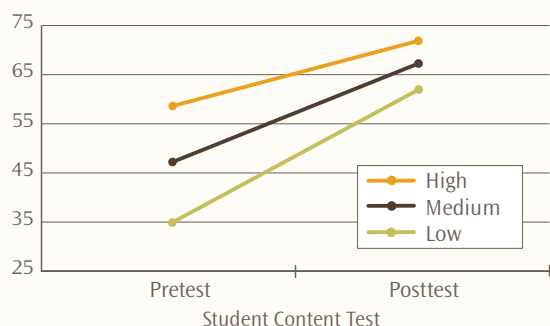
true across states, in school districts of varying sizes, with novice and veteran teachers, and with students from a range of socioeconomic backgrounds, including native English speakers and English learners. In the most rigorous test, researchers from the University of California at Berkeley and Heller Research Associates conducted a cluster-randomized trial over a two-year period (2007–09). Their study encompassed eight sites across the

United States and involved 49 districts, more than 260 elementary teachers, and nearly 7,000 students. The students were from largely underserved populations and in some classrooms, 100% of students were eligible for free and reduced lunch and up to 65% of students were nonnative English speakers.

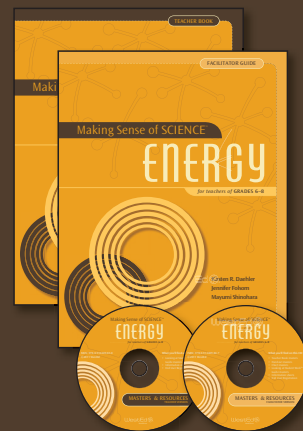
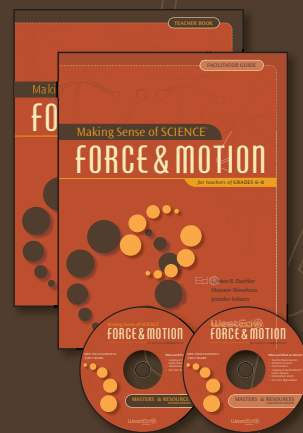
In this study, treatment teachers made exceptional gains in their science content knowledge with a level typically seen only in one-to-one tutoring.

Students of treatment teachers outperformed students of control teachers by more than 40%. The treatment effects on students were significant for all major demographic groups, with nonnative English speakers gaining more than native speakers and low-performing students making the biggest gains. Thus, Making Sense of SCIENCE courses can help reduce student achievement gaps.

Science Content Gains for Students of Participating Teachers  
*disaggregated by low, medium, and high entering knowledge*



In the past several years, a series of increasingly rigorous randomized controlled and quasi-experimental studies of individual Making Sense of SCIENCE courses have documented their effectiveness. Every study showed statistically significant increases in teacher and student science content knowledge (Heller, Daehler, & Shinohara, 2003; Heller et al., 2010; and Heller, 2011). These results held



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