

APPENDIX A | POINTERS TO PROFESSIONAL DEVELOPMENT MATERIALS

A central issue in teaching ELLs mathematics is supporting classroom mathematical discussions. Below we provide pointers to Professional Development Materials (books, videos, etc.) that can be used by teachers to learn to orchestrate mathematical discussions. Although teachers can read the materials on their own, the best settings for this type of professional development would be long term study groups or professional development experiences.

Mathematical discussions

1. *Five practices for orchestrating productive mathematics discussions*. Margaret Smith and Mary Kay Stein. Corwin Press, 2011.

This book's five practices connect students' approaches with the underlying mathematics and help teachers support productive classroom discussions.

2. *Classroom discussions: Using math talk to help students learn. Grades 1–6*. Chapin, S. C., O'Connor C., & Andersen, N. C. Math Solutions, 2003.

This book provides a unique look into the significant role of classroom discussions in mathematics teaching in grades one through six. Five discussion strategies are introduced to help teachers strengthen students' thinking and learning and help them build connections among mathematical ideas. A valuable outline is provided to help teachers get started using talk in the classroom, plan lessons, and deal with challenges. Two case studies are also included for further insight into how teachers can use talk effectively.

3. *Classroom discussions: Seeing math discourse in action* (Multimedia Professional Learning Resource). Math Solutions.

This set of DVDs provides pre-service and in-service instructors, coaches and facilitators with real, classroom-based video examples that illustrate the principles and practices covered in the book, *Classroom discussions: Using math talk to help students learn, grade K–6, second edition*. Ideally the three components—guide, DVD, and book—would be used together. The video examples in the DVD demonstrate how the talk tools described in the book can be used successfully in typical classrooms.

Below are three links for examples of math classroom videos on the Math Solutions website. The first one is a first grade class in a two-way bilingual school.

Appendix A

Pointers to professional development materials

http://www.mathsolutions.com/MathTalk/videos/CRD_Gr1.html

http://www.mathsolutions.com/MathTalk/videos/CRD_Gr5.html

http://www.mathsolutions.com/MathTalk/videos/CRD_Gr6.html

The full set of materials includes DVDs, a Facilitator's Guide that includes reproducible materials (for a sample see Appendix B: Talk Moves That Help Students Orient to the Thinking of Others).

Professional development resources relevant to ELLs and mathematics teaching

Coggins, D., Kravin, D., Coates, G. D., & Carroll, M. D. (2007). *English language learners in the mathematics classroom*. Thousand Oaks, CA: Corwin Press.

Teachers and math specialists will find ways to incorporate ELL supports and strategies through sample lessons that connect standards-based mathematical concepts with language development.

Celedón-Pattichis & Ramirez. N. (2012). *Beyond good teaching: Advancing mathematics education for ELLs*. Reston, VA: National Council of Teachers of Mathematics.

Through guiding principles and instructional tools, together with classroom vignettes and video clips, this book shows how to go beyond good teaching to support ELLs in learning challenging mathematics while developing language. The design of this book is interactive and requires the reader to move back and forth between the chapters and online resources at nctm.org.