

Connecting Arithmetic to Algebra: Strategies for Building Algebraic Thinking in the Elementary Grade

Website: <http://investigations.terc.edu/>

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Algebra readiness: it's a topic of concern that seems to pervade every school district. How can we better prepare elementary students for algebra? More importantly, how can we help all children, not just those who excel in math, become ready for later instruction? The answer lies not in additional content, but in developing a way of thinking about the mathematics that underlies both arithmetic and algebra.

Connecting Arithmetic to Algebra is a new professional development guide that invites readers to learn about a crucial component of algebraic thinking: investigating the behavior of the operations. Nationally-known math educators Susan Jo Russell (TERC), Deborah Schifter (EDC), and Virginia Bastable (SummerMath for Teachers) and a group of collaborating teachers describe how elementary teachers can shape their instruction so that students learn to: notice and describe consistencies across problems; articulate generalizations about the behavior of the operations; and develop mathematical arguments based on representations to explain why such generalizations are or are not true.

Through such work, students become familiar with properties and general rules that underlie computational strategies—including those that form the basis of strategies used in algebra—strengthening their understanding of grade-level content and at the same time preparing them for future studies. Each chapter is illustrated by lively episodes drawn from the classrooms of collaborating teachers in a wide range of settings. These provide examples of posing problems, engaging students in productive discussion, using representations to develop mathematical arguments, and supporting both students with a wide range of learning profiles.

Connecting Arithmetic to Algebra Course Facilitator's Guide is also available from Heinemann to provide leaders with tools and resources for implementing a workshop or preservice course.

