

1056-N1-2057

Trisha A. Bergthold* (bergthold@math.sjsu.edu), Department of Mathematics, San Jose State University, One Washington Square, San Jose, CA 95129-0103. *Extending from Multiplication of Two-Digit Numbers to Multiplication of Binomials and Beyond: Understanding the Learning Trajectory*. Preliminary report.

This presentation will describe a learning trajectory focused on multiplication of binomials. The learning trajectory was presented to teachers (grades 7-9) in a professional development program aimed at algebra readiness. The trajectory illustrates three main points. First, a conceptual understanding of multiplication of two-digit numbers can be built in earlier grades through the use of manipulatives, rectangular models, and scaffolding from partial products charts to the partial product algorithm to the standard algorithm for multiplication. Second, a comparable trajectory can be utilized to build a conceptual understanding of multiplication of binomials. Third, this conceptual understanding of multiplication of binomials forms the basis for building an understanding of how to "unmultiply" trinomials. The genesis for this idea came from the recognition that many teachers have not had opportunities to examine mathematical concepts vertically, that is, across multiple grade levels. By looking at a vertical slice of content, teachers learn how to capitalize on what students already know, remediate what they don't know, and emphasize the pieces most crucial to understanding what lies ahead for them. (Received September 23, 2009)