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In order to help students develop mathematical habits of mind that support success in algebra, teachers must understand how algebraic thinking is woven throughout the K-12 curriculum. The University of Arizona partnered with local school districts on two projects designed in part to strengthen teachers' understanding of how algebraic ideas evolve across grade levels: the NSF-sponsored Arizona Teacher Initiative, which provided graduate coursework for elementary and middle school teachers, and Project CoMPASS, a summer program for middle and high school teachers sponsored by the Arizona Department of Education. We will discuss how partnerships with local school districts enriched these projects, and talk about some of the challenges inherent in conducting content-based professional development with geographically and mathematically diverse groups of teachers. (Received September 20, 2016)