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As part of the Math & Science Partnerships Initiative, a three-year project to improve Topeka, KS teachers' content knowledge is led by a three-person team whose areas of expertise are mathematics, mathematics education, and grades 5-12 teaching. In the first two years, 25 K-8 teachers participated. The project includes intensive 2-week summer institutes and quarterly follow-up sessions. Aligned with state standards, each institute is focusing on deepening mathematical understanding in a particular area: algebra and number sense in 2004, geometry and measurement in 2005, and data analysis/probability in 2006. Daily institute activities are chosen, modified, or created based on their relevance to fundamental concepts in K-8 mathematics. Summer pretest and posttest results confirmed an improvement in the teachers' confidence and mathematical abilities, e.g. relating numerical patterns to functions, analyzing geometrical objects by their characteristics, utilizing algebraic properties of number systems, and integrating mathematical vocabulary into classroom practice. School year follow up sessions target the improvement of classroom decision-making and lesson-planning. A description of the preparation, daily activities, and results from the project will be shared. (Received September 26, 2005)