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Imre Tuba* (tubai@slu.edu), Dept of Mathematics and Computer Science, Saint Louis University, 220 N Grand Blvd, St. Louis, MO 63103, and **Gregorio A Ponce** (gponce@mail.sdsu.edu), San Diego State University, Imperial Valley, 720 Heber Ave, Calexico, CA. *Synthesizing pedagogical strategies to teach solving linear equations.*

One of the challenges in middle school mathematics teaching is solving linear equations. This is the beginning of an important and for many students difficult transition from arithmetic with concrete numbers to algebra with symbols, which takes years to complete and is a crucial element of college readiness. Many approaches have been tried to teaching equations. We propose yet another, which we have used with measurable success in professional development for middle school teachers. It synthesizes several strategies from the educational literature and relates solving simple linear equations in one variable to backtracking one's steps, an activity that students are already familiar with. We also discuss how this teaching strategy can lay the foundation to understanding challenging higher level concepts, such as inverse functions, and inverse elements in groups. (Received September 16, 2014)