1056-N1-865   **Dianna Spence*** (`djspence@ngcsu.edu`), NGCSU Dep't. of Math & Computer Science, 82 College Circle, Dahlonega, GA 30597, and **A. Robb Sinn**. *Visualizing Algebraic Relationships: Solving Combined Rate Problems with Pattern Blocks.* Preliminary report.

Consider the question: "Mary fills 3 balloons per minute. Joe fills 5 balloons every two minutes. Working together at these rates, how long will it take them to fill 440 balloons to decorate for the prom?" We share a technique of visualizing and solving problems of this type using pattern blocks. This technique has been introduced in a mathematics content course for K-8 pre-service and in-service teachers. The course, 'Modeling in Algebra', is required for our undergraduate degree programs that result in K-8 teacher certification. A graduate-level version of the course is available for in-service teachers working on masters degrees. We discuss connections students make about problem solving, rates, fractions, and algebraic relationships while using manipulatives, and we share the results of a pilot test that compared this instruction technique to more traditional "procedural" instruction on combined rate problems with K-8 pre-service and in-service teachers. Included is a discussion of successes and challenges experienced. (Received September 18, 2009)