

1056-N1-481

**Carol E Seaman\*** ([ceseaman@uncg.edu](mailto:ceseaman@uncg.edu)), 7402 Fairhaven Dr., Greensboro, NC 27455, and  
**Jennifer Earles Szydlik.** *Big Ideas in Algebra: Materials to Foster Mathematical Thinking.*

Based on our constructivist philosophy of learning and our ongoing work with preservice and practicing teachers, we have developed NCTM Standards-based curriculum materials for preservice teachers. Our algebra text focuses on algebra as the study of arithmetic structures, patterns and functions, and building and solving equations. Each topic begins with a motivating Class Activity designed to introduce a big idea through small-group work in class. A Read and Study section that provides normative definitions and notation, a Connections to the Middle Grades section focused on children's thinking about the topic and samples of relevant middle grades curricula, and Homework presented within the context of the activity ideas follow.

Beyond understanding the fundamental concepts of algebra, we want our students to reason like mathematicians. We aim to show students that algebra is not a subject to be memorized; it is about ways of exploring, thinking and knowing. In this session we will share our best algebra activities and we will describe the class conversations that arise from work on them. In particular, we will focus on how we develop aspects of mathematical reasoning such as a profound appreciation for definitions, notation, and counterexamples, and the ability to generalize. (Received September 09, 2009)