

# Big Ideas of Algebra

“By viewing algebra as a strand in the curriculum from prekindergarten on, teachers can help students build a solid foundation of understanding and experience as a preparation for more-sophisticated work in algebra in the middle grades and high school” (NCTM *Principles and Standards for School Mathematics*, p. 37).

The Editorial Panel is searching for manuscripts that share ideas and lessons to make the big ideas of algebra (Equivalence, Patterns and Functions, Variables, and Graphing) accessible to all students. What do you do in your classroom to make algebraic thinking come alive for your students? To teach algebraic thinking, how do you—

- use concrete materials;
- relate concrete materials to symbols, tables, graphs, and other representations;
- incorporate children’s books, familiar contexts, science, and problem solving; or
- link arithmetic and algebraic thinking?

How do you establish a classroom or learning atmosphere that stimulates learning and algebraic thinking and supports students? Which activities and questions do you use to help students do the following?

- Investigate the meaning of the equal sign.
- Explore the concept of equality, or balance, as central to understanding equations and inequalities.
- Transform expressions and equations into equivalent forms.
- Create, describe, extend, and interpret patterns.

- Perceive the regularity and predictability of patterns.
- Discover repeating patterns as a foundation for considering growing patterns and number sequences.
- Use patterns as a vehicle to stimulate thinking about variables and functions.
- Explore and develop understanding about functions.
- Develop ways to determine the output when the input is given for a particular function.
- Develop ways to determine the input when given the output for a particular function; expand understanding of how to construct inverse operations rules to “undo” what other operations perform.
- Understand assorted uses of variables.
- Determine what is changing when using variables.
- Conclude whether a change follows a particular pattern.
- Determine and communicate what is happening in graphs.
- Use coordinate graphs for the purpose of representing relationships between two quantities.
- Understand the process of plotting points in coordinate graphing.
- Play games that reinforce and deepen understanding of algebraic thinking and ideas.
- Make connections among arithmetic, geometry, and algebra.

Typed, double-spaced manuscripts should be no longer than 2500 words; attach figures and photographs at the end. Submit completed manuscripts to *Teaching Children Mathematics* by accessing [tcm.msubmit.net](http://tcm.msubmit.net). Author identification should appear only on the cover page. For manuscript preparation guidelines, visit [www.nctm.org/publications/content.aspx?id=7696](http://www.nctm.org/publications/content.aspx?id=7696).