

# What Research Says about Teaching Fractions

**Summary:** There are a number of different methods out there for teaching fractions. A recent article on *EdWeek* describes new research on fractions that point to the need to teach fractions in a more conceptual way, especially in light of the Common Core standards, which call for more fraction learning to occur in middle elementary grades.

## Practical Applications

The article describes both challenges with many current methods of teaching fractions, and then solutions that new research is suggesting. This is especially important as fraction mastery is shown to be one of the key predictors of students' success later in algebra.

- **Challenges**
  - Overemphasis on procedures
  - “Curricula overwhelmingly focus on understanding fractions as parts of a whole, using area models and pie charts, and teaching students the procedures for adding or multiplying.”
  - Students can convert fractions, such as  $7/10 = .7$ , but can't place them on a number line or convert more complicated fractions such as  $7/9$
- **Promising Solutions**
  - Focus on “getting students to understand the relationship between numbers that underlie a fraction problem.” (in other words, that  $7/10$  not only means there are 7 parts of a whole, but that this represents a particular value, and the relationship would be different if it was  $7/9$ ).
  - Teach students to understand fractions such that they can estimate where a given fraction will fall on a number line (e.g. that  $9/4$  will be closer to 2 than to 3)
  - Help students understand magnitude – “that a [fractional] number represents a set of items which can be changed or compared to other sets”

## Conclusion and Citation

Recent research is fairly unanimous that teaching fractions in such a way that students understand the relationships between the numbers, instead of just procedures for comparing and converting, is key to mastery that will last through till high school and beyond.

“Federal Research Suggests New Approach to Teaching Fractions,” by Sarah Sparks. *EdWeek*, published online July 18<sup>th</sup>, 2013. <http://bit.ly/15q8zp5>