



Curriculum Units by Fellows of the National Initiative
2011 Volume VI: Great Ideas of Primary Mathematics

A Deeper Understanding of Fractions through Number Line Explorations

Guide for Curriculum Unit 11.06.07, published September 2011
by Joe Condon

In elementary and middle-school mathematics, there is nary a concept so misunderstood as fractions. Students will groan, whine and generally do anything possible to avoid using these rational numbers. This lack of confidence, combined with only a cursory understanding of the algorithms connected, has had a ripple effect on higher-level mathematics. The National Council of Teachers of Mathematics (NCTM) stated in 1989, that students' understanding and comfort with fractions is directly related to their success in proportional reasoning. The concept of proportional reasoning is believed to be one of the gateway concepts to success in algebra and beyond.

In this unit I will describe alternative ways for students to deepen their understanding of fractions. By using number lines, I believe students will embed the concepts of comparing value, addition, subtraction and multiplication of whole numbers and fractions in particular. By moving beyond the typical part to whole understanding of fractions and opening up the idea that fractions have value and can be represented as space on a line, students will move past the superficial and begin exploring the depths of fractions.

(Developed for Mathematics/Fractions, grade 7; recommended for Mathematics/Fractions, grades 4-7)

<https://teachers.yale.edu>

©2023 by the Yale-New Haven Teachers Institute, Yale University, All Rights Reserved. Yale National Initiative®, Yale-New Haven Teachers Institute®, On Common Ground®, and League of Teachers Institutes® are registered trademarks of Yale University.

For terms of use visit https://teachers.yale.edu/terms_of_use