



Boosting Number Sense in High School Students

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Many students reach high school having received high grades in math because they learned the algorithms, but using algorithms does not guarantee conceptual understanding. Many students lack number sense. In this unit, number sense is defined by three characteristics: understanding Number Systems, Mathematical Operations, and Flexibility in Mathematical Situations. The Number Systems refer to the different types of numbers, place value and the relative magnitude of numbers. Mathematical Operations are addition, subtraction, multiplication, division and the relationships between them, the Rules of Arithmetic that govern them, and the effect of these operations on different types of numbers. Flexibility is being able to recognize multiple ways to work with numbers and identify the most efficient method with which to proceed. This unit encompasses Roger Howe's Great Ideas in Primary Mathematics, which build number sense, in the form of *calculator-free*, daily warm-up/bell-ringer activities for one semester, focusing on one topic per week. Throughout the unit, students are expected to describe and defend their thought processes to their classmates. Although this unit is written for upper-level math students, many of the ideas are basic enough to be used for younger students.

(Developed for Pre-Calculus, grades 11-12; recommended for Pre-Algebra and Pre-Calculus, grades 7-12)

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