



YALE NATIONAL INITIATIVE

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Curriculum Units by Fellows of the National Initiative

2007 Volume VI: Keeping the Meaning in Mathematics: The Craft of Word Problems

Linear Expressions and Evaluations

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by Angel Johnson

As we continue to use mathematics as a tool to model physical or real world phenomena, more complex situations will be represented by word problems. As a global society, educators and students must become extremely comfortable in incorporating, using, and solving word problems. This three-week unit is designed to introduce Algebra 9th grade students to the language of mathematics and show them how to model situations symbolically—known as concise representation. The unit develops algebraic concepts through the use of everyday arithmetic situations. Students learn that, through the rules of addition, subtraction, multiplication and division, and procedures for finding the unknown values, they can systematically translate concrete situations into algebraic expressions and manipulate and evaluate those expressions to arrive at a solution. Specifically, students learn what expressions say, and how to translate back and forth between verbal formulations and symbolic ones. Students will develop notational representation (numerical and algebraic), simplify expressions, and apply these skills for reinforcement. Students will also have an opportunity to review, identify and apply the associative, commutative, distributive, and identity properties. Some relevant vocabulary words are: additive identity, algebraic expression, associative property, coefficient, commutative property, distributive property, factors, like terms, multiplicative identity, order of operations, product, and variables.

(Developed for Algebra I, grade 9; recommended for Algebra I, grade 9)

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