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Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
2004 Volume V: The Craft of Word Problems

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## Using Algebra Word Problems to Explore Problem Space

Guide for Curriculum Unit 04.05.10  
by Anthony B. Wight

Word problems represent the "real world" of money, measurement, information, consequences and arguments. At all levels, mathematics curricula should include and embrace word problem solving. Such exercises not only review and reinforce computational skills, but also they challenge students to shift from verbal situations to patterns, tables, graphs, equations and back. Building problem sets, which explore key arithmetic concepts and relate symbols to the concrete realities of students' lives, can moderate the abstract and remote nature of "algebra" for many students.

In this unit, I briefly discuss the Vertical Team concept and its value for mathematical problem solving. Second, I introduce the idea of "problem space," a phrase frequently used by our seminar leader, Roger Howe. Third, I propose that along with our curricular sequencing we look for and practice deliberate techniques that work each year for progressively more complex and intricate problems. Students thus will be building their own "toolkits" for algebraic problem-solving skills, which they can expect to master and apply as they advance through the grades. Finally, I present and discuss several sample problem sets designed for classroom activities in developing algebraic problem solving.

(Recommended for Mathematics, grades 5-7; Algebra and Mathematics, grades 8-10.)

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