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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

A = C - B: Subtraction is the Cousin of Addition

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This unit explores the process of subtraction through the study of word problems. It begins by providing a presentation of the decimal number system and base-ten operations as a scaffolding to support cognitive understanding of subtraction as the inverse process of addition. It teaches *composing* and *decomposing* of tens as opposed to the more traditional method of carrying and borrowing. It presents lessons treating various subtraction situations including: take-away, difference, and comparison and part-whole relations, especially missing addend problems. Students learn to identify key elements of problems, formulate conjectures and work in groups to problem solve. Lessons teach students to identify the unknown in a word problem. They also teach subtracting across zeroes and present mental math techniques.

The unit is written for a fourth grade bilingual English/Spanish class, therefore the word problems are in one or the other language; however, it could easily be adapted for a monolingual English fourth grade class. Taxonomies are included which provide useful nomenclature and methodologies for problem solving. An appendix of word problems, in English and Spanish, is provided as well, along with an annotated bibliography.

(Developed for Mathematics, grades 4-5; recommended for Mathematics, grades 3-5)

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