



Curriculum Units by Fellows of the National Initiative

2017 Volume V: From Arithmetic to Algebra: Variables, Word Problems, Fractions and the Rules

Introduction of the Variable by Forming and Interpreting Expressions

Guide for Curriculum Unit 17.05.07, published September 2017

by Jeffrey Rossiter

My students are unprepared to engage in curriculum surrounding translating expressions from word problems. They have incomplete knowledge of the role variables play in such situations. Students may only know the basic rules of arithmetic on a very surface level and oftentimes lack the depth of content knowledge to translate word problems into equations and then solve them. Starting students off with word problems as the main motivation for using symbolic algebra makes more sense. This allows students to see the mode in which problems are solved and gives them a plan to solve them. The series of student outcomes are split between four units including this one. Each unit will have its own unique place in translating, simplifying, and solving algebraic expressions and equations. This series is aimed at the middle school level and can be taught in succession with Rachelle Soroten's unit titled: Formulating Algebraic Expressions From Word Problems, that has students solve basic word problems using both bars models and algebra. In this unit, students will be exposed to a variety of problem sets that will increase their ability to translate verbal expressions into symbolic ones. They will also get experience functioning in a discussion-based classroom through experiencing intertwined participation strategies. Next, Xiomara Pacheco's unit titled: Simplifying The Issues With Expressions will simplify these complex expressions to allow Sally Woo's unit titled: Making Sense of Solving Equations Through Word Problems - The Cornerstone of Algebra to address solving multi-step equations.

(Developed for Pre-Algebra, Mathematics, grade 7; recommended for Pre-Algebra, grade 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