CONTEXTUALIZED MODELS FOR SLOPE AND LINEAR EQUATIONS
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This poster presentation will describe and illustrate photos and products of student work from the results of a classroom-based case study involving 10 eighth grade students' use of visual and tactile models during instruction of a unit involving the topics of slope, graphing, and equations. The models were derived from the *Mathematics in Context* curriculum unit *Graphing Equations* (Kindt, et al., 1998). Samples of student work from pre- and post-unit interviews and classroom work will be used to illustrate the impact of various models on their ability to determine the slope of a line and solve a linear equation for an unknown.

Pre-unit tasks were used to assess students' informal and prior knowledge of slope and solving linear equations. Most of the informal/prior knowledge consisted of recognizing slope as "something slanted". Several students related the word to skiing and drew a diagonal line to represent a ski slope. In addition, four of the ten students were able to use the slope of a line within a context to determine an unknown quantity. None of the students, prior to the study, used any formulas or symbols to describe slope when asked to do so in their own words. During the study, compass cards and graphing calculators were used to locate points, draw lines, and determine the slope of a line. The results of post-unit interviews revealed that these activities enhanced eight out of the ten students' abilities to conceptually describe slope in their own words and determine the slope of a line using a variety of informal and symbolic strategies.

Prior to instruction, none of the students were able to solve linear equations for an unknown. A frog jump context and linear (visual and tactile) models were used during instruction to connect their knowledge of modifying "equal lengths" to the steps involved in solving a linear equation for an unknown. The results on post-unit tasks showed that eight out of the ten students were able to solve multi-step linear equations for an unknown.

Kindt, M., Wijers, M., Spence, M., Brinker, L., & Pligge, M. (1998). Graphing equations. In National Center for Research in Mathematical Sciences Education and Freudenthal Institute (Eds.), *Mathematics in context: A connected curriculum for grades 5-8.* Chicago: Encyclopedia Britannica Educational Corporation.