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Predicting amounts of change in quantities.

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From the text: Analyzing relationships between quantities can support middle-grades students' reasoning about algebra and function. When students focus on relationships between quantities in a function, they are reasoning covariationally. A student taking a covariation perspective might think about a function as a special relationship between quantities in which change in one quantity depends on change in another quantity. Students often have to wait until calculus to study the mathematics of change. A focus on relationships between quantities is one way to introduce middle-grades students to the mathematics of change. My intent with this article is to illustrate how predicting amounts of change in quantities can promote students' covariation perspectives. I provide examples of their work to illustrate different ways in which students have viewed relationships between quantities to make sense of a linear situation.

Classification: F93 G33 I23
Keywords: mathematics of change; covariation perspective; elementary algebra; rectangle-area problem; rectangle-resizing problem; lower secondary; quantitative reasoning; relationships between quantities; change in quantities; covariational reasoning; rectangles; area; height; length; noninteger amounts of change; diagrams; linear functions; propaedeutics