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Signs and tools of algebraic reasoning: a study of models among fifth grade students.

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Summary: This study focuses on the types of models created by students during algebraic pattern finding tasks. Attention is also given to the change in models over time. This is an important area of study because a closer look is needed to better understand the models created during mathematical activity, especially in the elementary classroom. It is reported here how fifth grade students used given concrete models and created new representations of models to reason algebraically about pattern finding tasks. Twenty-five fifth grade students participated in the three-day teaching experiment. Results indicate that students' recursive models were abandoned and then transformed to explicit models, and finally adopted from others during whole class discussions. These adopted models in most cases were enduring over a six-week period.

Classification: E53 H23 D43 D33

Keywords: algebraic reasoning; algebraic patterns; pattern finding tasks