

A STUDY OF FOURTH-GRADE STUDENTS' EXPLORATIONS INTO COMPARING FRACTIONS

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This paper investigates the growth of mathematical understanding in a class of fourth grade students as they build models to compare fractions as part of a year-long teaching experiment. This research builds upon the work of Steencken (2001) and Bulgar (2003) who examined other components of this teaching experiment.

This paper examines the development of mathematical reasoning in a class of twenty-five fourth grade students as they build models with Cuisenaire Rods™ to compare fractions. These students were part of a year-long teaching experiment led by Carolyn A. Maher and assisted by other researchers from Rutgers University Graduate School of Education in New Brunswick, NJ. The purpose of the teaching experiment was to study the ways that young children develop mathematical ideas when challenged with tasks that invite mathematical dialog. Researchers encouraged the students to clarify their thinking and justify their solutions through model building, discussions and reflections upon their work. In the sessions examined for this study students built multiple models with the Rods to determine which of a set of two fractions was larger and by how much. Students were asked to explore the relationship among the models and to study the models for clues that would help them build another model to compare the same fractions. This paper will examine how a group of seven of these students was able to find the difference between fractions with unlike denominators and how they were able to discover a generalized solution that enabled them to build multiple models.

References:

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