

ZMATH 2010c.00299

Cramer, Kathleen A.; Monson, Debra S.; Wyberg, Terry; Leavitt, Seth; Whitney, Stephanie B.

Models for initial decimal ideas.

Teach. Child. Math. 16, No. 2, 106-117 (2009).

Summary: Appropriate concrete and pictorial models allow students to construct meaning for rational numbers and operations with the numbers. To develop deep understanding of rational number, sixth through eighth graders must experience a variety of models (NCTM 2000). Since 1979, personnel from the Rational Number Project (RNP), a cooperative research and development project funded by the National Science Foundation, have been investigating children's learning of fractions, ratios, decimals, and proportionality. This article discusses how the Rational Number Project group put a twist on the familiar 10 x 10 grid in their latest curriculum development project to build meaning for decimals and improve students' understanding of addition and subtraction with decimals. The authors share insights as to which concrete and pictorial models have been effective in developing initial decimal ideas, which include understanding what decimals mean in terms of fractions and place value, constructing order strategies to judge the relative size of decimals, understanding decimal equivalence, and developing meaningful strategies for adding and subtracting decimals (as opposed to rote memorization of a procedure). (Contains 6 figures and 1 table.) (ERIC)

Classification: F43 C33 U63

Keywords: number concepts; decimal numbers; grade 8; arithmetic; grade 6; grade 7; mathematical concepts; teaching methods; color; models