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Mapping and development of intuitive proportional thinking.

J. Math. Behav. 20, No. 3, 321-336 (2001).

The purpose of this study was two-fold. First, to find out students' informal understanding of proportional problems, and discuss their solution strategies. Second, to investigate how the intuitions developed by students influence in their strategies to solve proportional problems. To this end, we interviewed 16 students in Grades 4 and 5, while they were solving proportional problems. It was found that students intuitively used the unit-rate strategy indicating an attempt to transfer the knowledge resulted by their experience with solving simple multiplicative problems. Fourth and fifth graders tended to shift from the unit-rate strategy to other strategies if there was no easy way to calculate the unit-value directly from the context of the problems. Since fifth graders were more comfortable than fourth graders in calculating the unit-value, they felt less the need to invent other solution strategies. (orig.)

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