

ZMATH 2008b.00158

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The derivation of a learning assessment framework for multiplicative thinking.

Novotná, Jarmila (ed.) et al., Mathematics in the centre. Proceedings of the 30th annual conference of the International Group for the Psychology of Mathematics Education, PME, Prague, Czech Republic, July 16–21, 2006. Vol. 1-5. Prague: Charles University, Faculty of Education. Part 5, 113-120 (2006).

Summary: Research has shown that many students in Years 5 to 9 experience considerable difficulty with rational number, algebra, and the application of multiplication and division to a broader range of problem types. While each of these has been the focus of considerable research, there is little advice about how these ideas are connected and jointly develop over time. This paper describes the genesis of a learning assessment framework for multiplicative thinking based on Rasch analysis of student responses to a range of rich tasks to inform more targeted approaches to teaching mathematics in the middle years.

Classification: C73 D73 F43 H23

Keywords: numeracy; multiplicative thinking; rational numbers; elementary algebra; multiplication; division; lower secondary; learning and assessment framework; educational research