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What does it take to develop assessments of mathematical knowledge for teaching?: Unpacking the mathematical work of teaching.

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Summary: In the context of the increased mathematical demands of the Common Core State Standards and data showing that many elementary school teachers lack strong mathematical knowledge for teaching, there is an urgent need to grow teachers' MKT. With this goal in mind, it is crucial to have research and assessment tools that are able to measure and track aspects of teachers' MKT at scale. Building on the concept of "mathematical tasks of teaching", we report on a new framework that unpacks the mathematical work of teaching that could serve as a scaffold for item writers who are developing assessments of MKT. We argue that this framework supports a focus on the mathematical work of teaching that moves beyond common content knowledge but without moving into a space of pedagogical choice. We also illustrate how the framework was constructed to highlight connections within and across the mathematical content of elementary school. The mathematical work of teaching framework has implications for assessment development at scale, and could be useful as an organizing tool in mathematics teacher education efforts to grow teachers' MKT.

Classification: D69 D39

Keywords: teacher education; professional knowledge; subject content knowledge; mathematical knowledge for teaching; teacher knowledge; assessment development; research; primary education; professional development; educational diagnosis; mathematical work of teaching framework; mathematical objects
<http://www.math.unt.edu/tmme/Vol13no1and2/02-Selling-etal.pdf>