

ZMATH 2015e.00640

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Piecing it together.

Teach. Child. Math. 21, No. 4, 220-227 (2014).

Summary: Any of the key concepts that students need to know about area measurement are covered in the third-grade expectations detailed in the Common Core State Standards for Mathematics (CCSSM). However, making sense of area measurement is not always an easy task for students; it takes time. Researchers have found that young children often attend to length attributes when asked to measure area, or they are unsure of what exactly is meant by the word “area”. Consequently, students should have multiple and varied experiences over time to make sense of area measurement. Introductory experiences in the first or second grade may help build the foundation that students need to successfully tackle this topic in third grade. To build conceptions of area, the CCSSM document suggests that students in second grade should experience partitioning a rectangle into rows and columns of same-size square units and counting the squares to find a total. Even though the concept – equal partitioning and structuring a rectangle – may seem intuitive to an adult, students often have difficulty conceptualizing it. By second grade, children can usually succeed at counting units, but they often fail to construct units that are the same size or units that are in rows and columns. To address this issue, students need experiences playing and interacting with square units and building rectangular regions with these units. Researchers have indicated that experiences like these foster students’ conceptions of area and their precision in measuring. In this article, assistant professor Megan Wickstrom describes how she designed a lesson that would both challenge students’ notions about length and also provide an introduction to area measurement. After brainstorming several ideas, she selected the topic of quilt making for her lesson. Quilts and square quilt blocks are concrete objects that students could reference and use to express their thinking. She also selected a book [*J. Brumbeau and G. de Marken, The quiltmaker’s gift. New York, NY: Scholastic Press (2000)*] to provide a context for her students’ mathematical questions and discussion. This article describes a three-day lesson with the goals of introducing area measurement to students and having them investigate perimeter to challenge their notions of length measurement. (ERIC)

Classification: G43 M83 D83 U63

Keywords: mathematical concepts; measurement; geometric concepts; manipulative materials; handicrafts; activities; mathematics and arts

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