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The distributive property in grade 3?
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Summary: The Common Core State Standards for Mathematics (CCSSM) call for an in depth, integrated look at elementary school mathematical concepts. Some topics have been realigned to support an integration of topics leading to conceptual understanding. For example, the third-grade standards call for relating the concept of area (geometry) to multiplication and addition (arithmetic). The third-grade standards also suggest that students use the commutative, associative, and distributive properties of multiplication. Traditionally, multiplication has been a major topic for third grade. Linked to repeated addition of equal-size groups, multiplication logically follows the study of addition. Introducing rectangular arrays to represent groups (rows) of equal size illustrates both numeric and geometric interpretations of multiplication and naturally introduces the concept of area. Rotating the rectangular arrays illustrates the commutative property of multiplication, and determining the number of tiles needed to build a multicolor rectangle allows students to demonstrate their understanding of conservation of area and to discover a geometric interpretation of the distributive property. Although multiplication is typically a focus of third-grade mathematics, third-grade textbooks usually include few, if any, concepts of area or distribution and no geometric interpretation of the distributive property, which raises at least two questions: (1) Are third graders ready for the reasoning needed to understand these concepts? And, if they are, (2) how can integrated exploration of these topics help students make connections that deepen their conceptual understanding of these topics and others already in the curriculum? Helping students make connections like those illustrated here allows them to deepen their conceptual understanding that the distributive property is not an algorithm but a property, a characteristic that holds throughout mathematics – arithmetic, geometry, algebra, and other branches as well. (ERIC)