The importance of alignable differences in teaching linear measurement

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Abstract: We examined understanding of linear measurement in 1st and 2nd graders from high-and low-SES families. Children made two kinds of errors on measuring objects not aligned with the beginning of the ruler - reading off the number that corresponded to the rightmost edge of the object (common in low SES children) and counting the number of hatch marks that the length of the ruler encompasses (common in high SES children). Experiment 1 showed that only children who counted hatch marks at pretest learned from training that made use of misaligned ruler items combined with unit chips. Experiment 2 used the same procedure but presented pairs of objects that ended at the same point on the ruler (e.g., 5" and 2" sticks that both aligned with 5" on the ruler). With this training, children benefited regardless of initial error type. These findings indicate that comparisons that highlights alignable differences promote learning.