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**Counting as a foundation for learning to reason about probability.**

Chernoff, Egan J. (ed.) et al., Probabilistic thinking. Presenting plural perspectives. Dordrecht: Springer (ISBN 978-94-007-7154-3/hbk; 978-94-007-7155-0/ebook). Advances in Mathematics Education, 559-580 (2014).

Summary: Based on findings from long-term and cross-sectional studies in a variety of contexts and across a variety of ages, we have found that in the activity of problem solving on strands of counting and probability tasks, students exhibit unique and rich representations of counting heuristics as they work to make sense of the requirements of the tasks. Through the process of sense making and providing justifications for their solutions to the problems, students' representations of the counting schemes become increasingly more sophisticated and show understanding of basic combinatorial and probabilistic reasoning.

*Classification:* K50 K20 E50

*Keywords:* probability; combinatorics; open-ended problem solving; representations; strategies and heuristics; binomial theorem; justification; longitudinal study

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