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Booth, Julie L.; Newton, Kristie J.

Fractions: could they really be the gatekeeper's doorman?

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Summary: The National Mathematics Advisory Panel (NMAP) asserts that a foundational knowledge of fractions is crucial for students' success in algebra; however, empirical evidence for this claim is relatively nonexistent. In the present study, we examine the impact of middle school students' fraction and whole number magnitude knowledge on various components of their algebra readiness. Results suggest that fraction knowledge is related to algebra readiness, more so than number magnitude knowledge in general; students' magnitude knowledge of unit fractions (i.e., those with a numerator of 1) appears particularly important. Findings confirm the intuition of the NMAP and support the recommendation of the common core standards (National Governors Association Center for Best Practices) that students' fraction knowledge should be cultivated using number lines.

Classification: F43

Keywords: fractions; fraction knowledge; algebra readiness; unit fractions

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