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Arithmetic and algebra in early mathematics education.

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Algebra instruction has traditionally been postponed until adolescence because of historical reasons (algebra emerged relatively recently), assumptions about psychological development ('developmental constraints' and 'developmental readiness'), and data documenting the difficulties that adolescents have with algebra. Here we provide evidence that young students, aged 9-10 years, can make use of algebraic ideas and representations typically absent from the early mathematics curriculum and thought to be beyond students' reach. The data come from a 30-month longitudinal classroom study of four classrooms in a public school in Massachusetts, with students between grades 2-4. The data help clarify the conditions under which young students can integrate algebraic concepts and representations into their thinking. It is hoped that the present findings, along with those emerging from other research groups, will provide a research basis for integrating algebra into early mathematics education. (Authors' abstract)

Classification: H22 H32 C32

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