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naeyc and nctm

on early childhood mathematics

To succeed in school and in life, young children need a strong foundation in mathematics. Yet U.S. children's mathematical proficiency is far below that of many other countries, and the mathematics gap is widest for children living in poverty and those who are members of ethnic, cultural, and linguistic minority groups.

Early childhood is the place to start addressing the mathematics achievement gap: Preschoolers already enjoy and are keenly interested in the mathematical aspects of their everyday world. Families and early childhood programs can play a crucial part in nurturing these interests. Drawing on the latest research, the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM) have come together with a joint position statement: *Early Childhood Mathematics: Promoting Good Beginnings*.

NAEYC and NCTM take the position that all young children should experience *high-quality, challenging*, and *accessible* mathematics experiences. They make specific recommendations to guide curriculum and teaching practices in programs for 3- to 6-year-old children, and they recommend actions for policies, systems changes, and other steps needed to support high-quality mathematics education.

Recommendations

In high-quality mathematics education for 3- to 6-year-old children, teachers and other key professionals should . . .

1. enhance children's natural interest in mathematics and their disposition to use it to make sense of their physical and social worlds

2. build on children's varying experiences, including their family, linguistic, and cultural backgrounds; their individual approaches to learning; and their informal knowledge

3. base mathematics curriculum and teaching practices on current knowledge of young children's cognitive, linguistic, physical, and social-emotional development

4. use curriculum and teaching practices that strengthen children's problem-solving and reasoning processes as well as representing, communicating, and connecting mathematical ideas

5. ensure that the curriculum is coherent and compatible with known relationships and sequences of important mathematical ideas

6. provide for children's deep and sustained interaction with mathematical ideas

7. integrate mathematics with other activities and other activities with mathematics

8. provide ample time, materials, and teacher support for children to engage in play, a context in which they explore and manipulate mathematical ideas with keen interest

9. actively introduce mathematical concepts, methods, and language through a range of appropriate experiences and teaching strategies

10. support children's learning by thoughtfully and continually assessing all children's mathematical knowledge, skills, and strategies

National Association for the Education of Young Children and National Council of Teachers of Mathematics

To support high-quality mathematics education, institutions, program developers, and policymakers should . . .

1. create more effective early childhood teacher preparation and continuing professional development in mathematics

2. use collaborative processes to develop well aligned systems of appropriate, high-quality standards, mathematics curriculum, and assessment

3. design institutional structures and policies that support teachers' mathematics learning, teamwork, and planning

4. provide resources necessary to overcome the barriers to young children's mathematical proficiency at the classroom, community, institutional, and system-wide levels

A positive attitude toward mathematics and a strong foundation for mathematics learning begin in early childhood. Working together, educators, administrators, policymakers and families can raise awareness about the importance of early childhood mathematics, inform others about sound approaches to mathematical teaching and learning, and develop resources that support high-quality, equitable mathematical experiences for all young children.

The complete position statement, with research and references, is available online at **www.naeyc.org/positionstatements/mathematics**

Beyond Early Childhood Mathematics: What Else Matters?

Learn more about…

- early learning standards, as described in NAEYC and NAECS/SDE's 2002 position statement, online at www.naeyc.org/positionstatements/learning_standards.
- teaching strategies and other elements of developmentally appropriate practice. See C. Copple & S. Bredekamp (eds.), *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth through Age 8*, 3d ed., Washington, DC: NAEYC, 2009. Access the position statement online at www.naeyc.org/positionstatements/dap.
- standards for early childhood programs and accreditation performance criteria, online at www.naeyc.org/academy/primary/standardsintro.
- standards for early childhood professional preparation programs as updated by NAEYC in 2009, online at www.naeyc.org/positionstatements/ppp.
- implementation of professional standards. See M. Hyson (ed.), *Preparing Early Childhood Professionals: NAEYC's Standards for Programs*, Washington, DC: NAEYC, 2003.

The National Research Council and Early Childhood Mathematics

Affirming the critical need for improved mathematics education in early childhood, in 2009 the National Research Council released a report summarizing the evidence and making key recommendations for practice, policy, and research. The report's recommendations strongly align with those in the NAEYC/NCTM position statement.

"*Providing young children with extensive, high-quality early mathematics instruction can serve as a sound foundation for later learning in mathematics and contribute to addressing long-term systemic inequities in educational outcomes"* (Cross, Woods, & Schweingruber 2009, 2).

Cross, C.T., T.A. Woods, & H. Schweingruber (eds.); Committee on Early Childhood Mathematics; National Research Council. (2009). *Mathematics learning in early childhood: Paths toward excellence and equity*. Washington, DC: National Academies Press. Online: www.nap.edu/catalog.php?record_id=12519.

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