



## WHAT WE KNOW ABOUT EARLY MATH LEARNING

Children at a very young age already have important foundational knowledge of mathematics. As they explore the physical world, young children develop an informal understanding of basic mathematical concepts about quantity, number operations, shapes, and space. Building on children's natural interest and curiosity, adults can provide more purposeful and explicit mathematical learning experiences that can help young children acquire a stronger foundation for formal math instruction in the later grades (NAEYC & NCTM, 2002).

Here are some key findings and recommendations for teaching math to young children:

- **Expose children** to a variety of math concepts and skills through rich and meaningful mathematical activities (Arnold, Fisher, Doctoroff, & Dobbs, 2002).
- **Play an active role** in children's early math learning (Clements, 2001).
- **Use a research-based curriculum** that has clear learning goals and an appropriate scope and sequence (Clements, 2007).
- **Teach all five domain elements of math:** Number Concepts & Quantities; Number Relationships & Operations; Geometry & Spatial Sense; Patterns; and Measurement & Comparison (Starkey, Klein, & Wakeley, 2004).
- **Strengthen children's reasoning abilities and problem-solving skills** through a variety of well-designed learning activities (Clements, 2004).
- **Adapt teaching strategies and activities** based on an understanding of children's level of cognitive development (Clements, 2004).
- **Provide a mathematically rich environment** that makes children's math learning experiences purposeful and meaningful (Lee & Ginsburg, 2007).
- **Make math real by mathematizing the everyday lives of children.** Explore teachable moments in children's daily experiences and explain them in explicit math language (Klibanoff, Levine, Huttenlocher, Vasilyeva, & Hedges, 2006).
- **Teach math across the curriculum** and integrate math concepts and skills into literacy, art, and science learning (NAEYC & NCTM, 2002).
- **Continuously observe, document, and assess each child's progress** to support math learning (NAEYC & NCTM, 2002).



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