

Let's talk about ... NAC Standard: *Basic math and science concepts are presented through age-appropriate materials/activities.*

By Lois Gamble

There are frequent questions regarding this standard. How can preschoolers learn math and science? Does this apply to Infants and Toddlers?

Yes, in fact, very young children learn and begin to apply concepts that are basic to math and science. As babies explore the world with their senses they learn about the size of people in their environment in relation to their smallness. Some things fit into their hands, others do not. Some toys roll, others do not. The consistent schedule of their day leads to a concept of time. Spatial awareness begins as babies begin to move and expands as the toddler crawls, stands and walks. Even at this young age, children learn problem solving (retrieving a toy or maneuvering their way around an object that stands in the way of where they want to go).

Preschoolers sort items into sets (by size, use, and/or color). They pour sand and water (using containers of varying sizes, pile blocks (recognizing that a certain number of small blocks are the same length as one large one), set the table (employing one-to-one correspondence by putting one of everything at each place), and match puzzle pieces to the shape board (visually identifying characteristics of shapes). Older preschoolers can talk about how objects are alike or different, measure objects, sequence items, describe attributes, participate in 'voting' (on their favorite food, etc.) as the teacher records the vote on a visual graph. These children use language that expresses their concept knowledge (big and small, long and short, more or less, etc.) They can connect small numbers to the quantities of real items they represent.

These and other fundamental math and science concepts can be acquired as children engage in traditional early childhood activities. Such 'informal knowledge' of math and science can be built upon and reinforced.

A teacher's goal is the development of a true knowledge of concepts and processes. Concepts and process do not result from memorization. Memorization is an isolated skill and does not lead to understanding. Understanding "develops through interaction with materials, peers, and supportive adults in settings where students have opportunities to construct their own relationships when they first meet a new topic."<sup>1</sup> Math and science are interrelated. The same fundamental concepts underlie a young child's understanding of both. There is more to math and science than numbers and formulas!

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<sup>1</sup> Charlesworth, R. & Lind, K.K. (2003). Math and Science for young children (4<sup>th</sup> ed.). Clifton Park, NY: Delmar Learning.