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Curious Minds: Three things to remember about STEM in Early Childhood Education



What do you think of when you hear the words Science, Technology, Engineering and Math (STEM)? If you're like the majority of us, your heart starts racing a little. I've heard colleagues discuss the ways in which they learned about science and math when they were in school. Their reflections are often laced with a sense of trepidation and they usually mention the heavy mental burden that they remember feeling during these subjects. Some parents and teachers are moved to tears by the sense of failure they experienced in STEM courses.

But we can write a new STEM story (for ourselves as well as our children). When we look at STEM through the lens of early childhood education, we can apply our tradition of weaving content into play-based classroom experiences that are naturally engaging and reinforcing to children. What a wonderful opportunity to make learning science and math a joyful time!

I'd like to share with you three things to think about as you approach STEM with young learners.

1. Children are more **COMPETENT** in math and science than teachers and parents realize.

We are born using intuitive math and science skills to interpret and react to the world. Infants as young as 9-months old have some sense of number and will move their eyes to a picture of two circles when two drumbeats are played (instead of a picture of 3 circles). Studies of language development indicate that from birth, babies' brains work like a statistical program by sifting through all of the sounds that they hear in the world and determining which sounds go together in their native language. In fact, when infants were played a tape of a "made up language" with sounds that were not a part of their native language, they got bored and stopped listening. But, when new combinations of the sounds of their own language were introduced into the "made up language" they started attending again. Over and over, babies are making connections and decisions about the world around them. They are "choosing" to attend or not attend based on data that they gather, interpret and act on.

2. Gender and socioeconomic GAPS related to STEM develop sometime in the preschool years and tend to grow as children move through the primary grades.

We've learned that math scores in preschool predict both math and literacy outcomes and that one possibility for closing opportunity gaps is to help children learn the types of higher level thinking skills that are used by scientists, mathematicians and readers alike. Quality STEM education in preschool is not a 'cherry on the top' to be incorporated once the language, literacy and social-emotional development have been mastered. STEM education in ECE is an issue of equity because we know that these higher level thinking skills and math knowledge are key to closing achievement gaps for kids.



3. To teach STEM in early childhood classrooms, you don't have to know all the **ANSWERS**, but you do need to know the **QUESTIONS**.

At Clayton Early Learning, we're working on supporting children's school readiness and we spend a lot of time thinking and learning about what teachers can do to really make a difference for kids. We are understanding more about the specific ways in which teachers can facilitate children's thinking during play that have been shown to correlate with academic outcomes in first grade and beyond. These ways of questioning and interacting

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