

Fostering Mathematical Thinking for Preschool and Beyond

PreK On My Way celebrates mathematical thinking as a natural part of young children's play and everyday experiences. Through thematic content-area instruction, children develop the ability to problem-solve and mathematize while exploring the world around them.

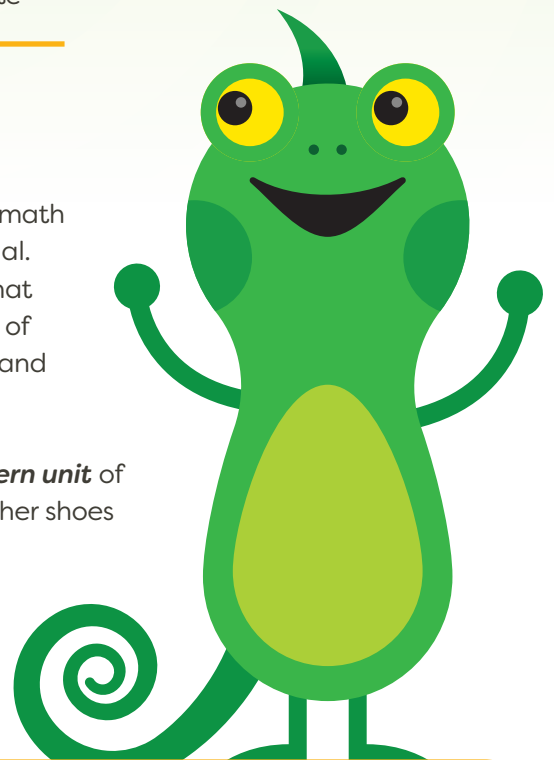


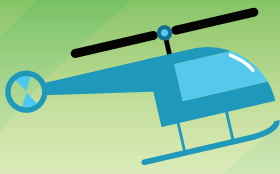
Developed in partnership with **Dr. Jie-Qi Chen**, cofounder of the Early Math Collaborative at the Erikson Institute

Cross Content Connections in Early Mathematics

Early math skills are a strong predictor of future reading skills, since early math involves processes that children will use throughout their lives (Duncan et al. 2007). PreK On My Way fosters the development of essential processes that build mathematical understanding, as identified by the National Council of Teachers of Mathematics, and help young children manage information and solve problems:

- **Unitizing:** The ability to find or make a unit, such as a *repeating pattern unit* of AB, a *measuring unit* of block lengths or inches, or *counting unit* of either shoes or pair of shoes.
- **Relating and organizing:** The ability to compare items to order them, such as identifying objects by size and ordering them when engaging in a *measurement* activity or comparing and ordering a set of objects by quantity when *counting*.
- **Decomposing and composing:** The ability to take apart and put together parts into a whole, such as two triangles to make a square in *spatial reasoning* or adding 3 and 2 to make 5 in *number operations*.
- **Looking for patterns and structures:** The ability to notice *rules that always apply*. For example, a given collection of items has a consistent quantity regardless of the way it is counted, and triangles can differ in size and orientation but are still triangles.

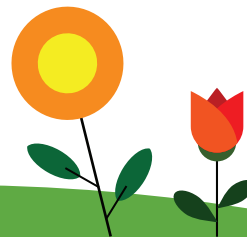
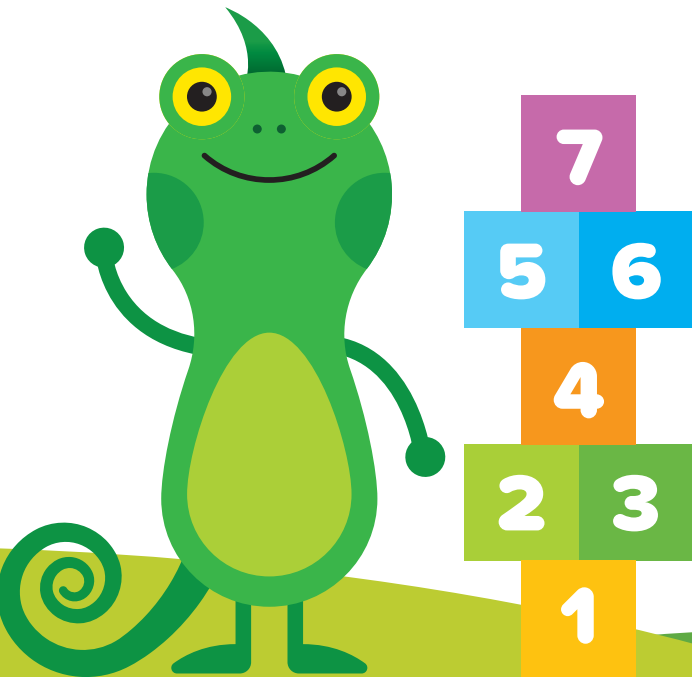
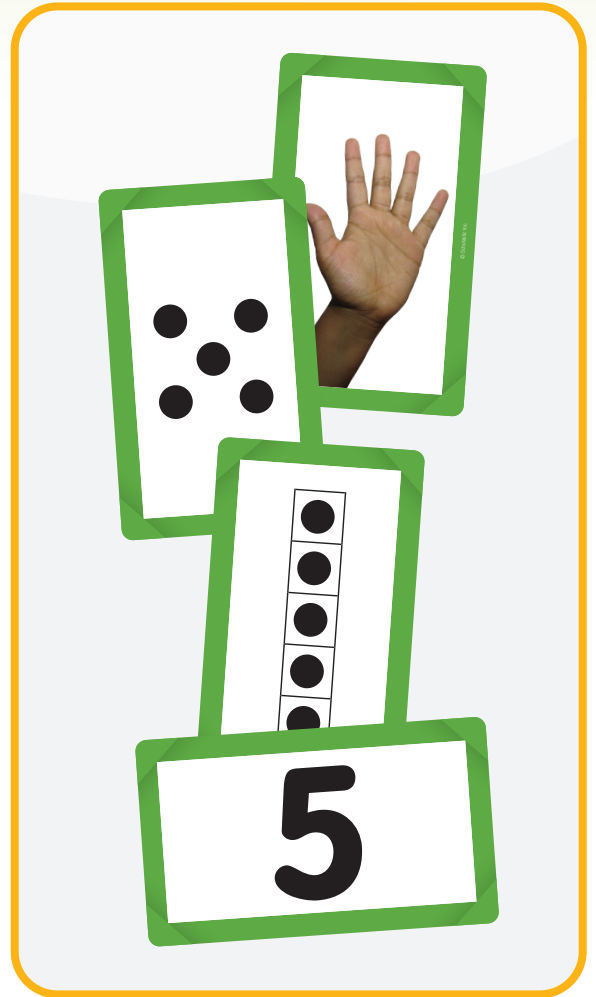




Multiple Representations to Foster Deep Understanding

Varied and repeated experiences with numbers and quantities help children understand and value math (Nathan 2013). In PreK On My Way children enjoy books, activities, and purposeful play with math actions, symbols, and images.

- **Actions:** Children actively gesture and dramatize quantities, comparisons, patterns, and operations through small-group activities, interactive read-alouds, purposeful play, and music and movement opportunities.
- **Images:** Children see and create both concrete and mental images through experiences with read-alouds, number cards, photo cards, and hands-on activities with drawing, writing, graphing, arts and crafts, and more.
- **Symbols:** Children learn to use math language and written symbols (numerals) to describe the math they witness and create in everyday life. PreK On My Way includes vocabulary photo cards to accompany every math lesson. It also includes magnetic numerals and numeral cards to support children's use of symbols.



References: Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., . . . Japel, C. (2007). School readiness and later achievement. *Developmental Psychology*, Vol. 43(6), pp: 1428-1446.

Mitchell Nathan (2013). *Embodied cognition: What it means to know and do mathematics*. Keynote presentation to the National Council of Teachers of Mathematics annual Conference Research Pre session, Denver, Colorado.