MATH LEARNING TRAJECTORY: PATTERNS

Learning trajectories describe learning goals that reflect the big ideas of mathematics, developmental progressions in the knowledge and skills of children at various levels, and instructional activities educators might plan for children (Clements & Sarama, 2009).

This learning trajectory serves as a guide for designing activities and teaching moves that focus on math concepts and skills that are developmentally appropriate for each child in your care.

Resources

Clements, D. H. & Sarama, J. (2009). *Learning and teaching early math: The learning trajectories approach*. New York: Routledge.

Clements, D. H., & Sarama, J. (2009). Learning trajectories in early mathematics—sequences of acquisition and teaching. *Encyclopedia of Language and Literacy Development* (pp. 1–7). London, ON: Canadian Language and Literacy Research Network. http://www.academia.edu/2773336/Learning_Trajectories_in_Early_Mathematics_-_Sequences_of_Acquisition_and_Teaching

Copley, J. V. (2010). *The young child and mathematics* (2nd ed.). Washington, DC: National Association for the Education of Young Children.

Greenberg, J. (2012). More, all gone, empty, full: Math talk every day in every way. *Young Children, 67*(3), 62–64. Retrieved from http://www.naeyc.org/yc/files/yc/file/201205/RockingAndRolling_YC0512.pdf

National Head Start Family Literacy Center. (2010). *High five mathematize: An Early Head Start and Head Start resource guide.* Washington, DC: Office of Head Start, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/practice/curricula/high-five.html

Notari Syverson, A., & Sadler, F. H. (2008). Math is for everyone: Strategies for supporting early mathematical competencies in young children. *Young Exceptional Children, 11*(3), 2–16.

Sarama, J., & Clements, D. H. (2009, March). Teaching math in the primary grades: The learning trajectory approach. *Beyond the Journal Young Children on the Web*. Retrieved from http://www.naeyc.org/files/yc/file/Primary_Interest_BTJ.pdf

MATH LEARNING TRAJECTORY: PATTERNS

Big idea: Recognize repetition and sequences of objects and events in order to make predictions and generalizations

Infants and Toddlers

LEARNING GOALS

- Repeat action sequences multiple times.
- Recognize simple patterns, such as sequences of sounds, movement, and events.

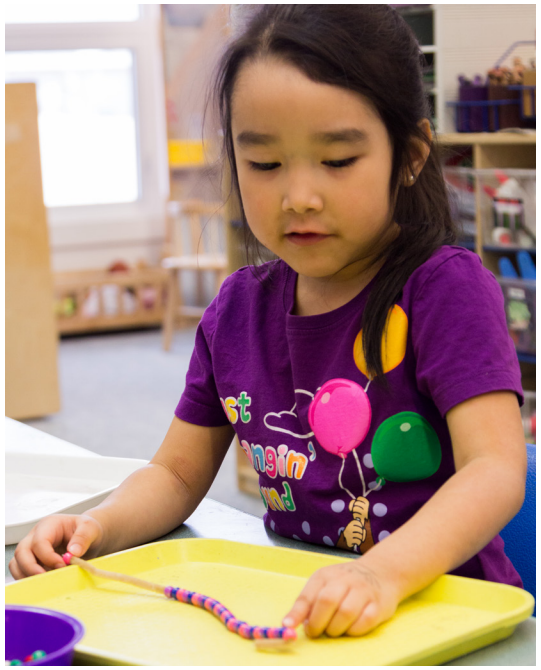
TEACHING MOVES

- Provide a predictable schedule of daily routines and activities.
- Conduct musical activities with sound and movement patterns.
- Sing songs and read books with repetitive words and phrases.

Younger Preschoolers

LEARNING GOALS

- Recognize, describe, and extend simple repeating patterns of sounds, shapes, colors, movement, and events.



TEACHING MOVES

- Have children use objects and toys to copy and create simple visual patterns.
- Engage in musical activities where children create simple repeating patterns using sounds and movement.

Older Preschoolers

LEARNING GOALS

- Recognize, describe, and extend simple growing patterns.

TEACHING MOVES

- Have children use dots, beads, or small blocks to copy and create visual patterns that grow by one unit.
- Have children cut out and paste objects that come in pairs (e.g., shoes, socks, hands, feet) following a growing pattern (e.g., one pair, two pairs, three pairs).