Learning the Language:
Math Talk for Math Language Learners

(note taking page)

Outcomes

- increase the use of mathematical experiences before introducing the math vocabulary
- increase awareness of the use of ordinary vocabulary as it relates to concept development

For math language learners, the process of developing math concepts begins with children's experiences that build language.

Language acquisition

Sequence of learning

Counting
Cardinality

Symbols

Linear calendar

Teaching-Learning Paths

Sequence of Learning – Piaget

Patterns

Ordinals

More – Less

Measurement

Research shows ….

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Teaching-Learning Paths

adapted from
Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity
National Research Council of the National Academies
and
SNAP (Student Numeracy Assessment Progressions)

Says numbers out of order – does not know the sequence, sequence does not matter

Says numbers in order - one, two, three, etc., often called rote counting (accurate name for this is forward number word sequence)

Counts objects – may count some more than once, skips some objects

Counts objects using one-to-one correspondence (10 or less)

Knows how many is in a set after counting (cardinality – that is remembering the last number counted is the quantity for the set)

Subitizes – recognizes small quantities without counting

Recognizes written numerals

Counts backwards (backward number word sequence)

Produces a set – counts out a number of objects requested from a larger set (10 or less), ask for three and be given three

Counts objects using one-to-one correspondence (more than 10)

Produces a set – counts out a number of objects requested from a larger set (more than 10)

Develops number sense (knowing the parts that make up a whole)
(4 and 1 are the same as 5, 3 and 2 are the same as 5, etc.)

Counts on (adds) using a pattern (10 or less)

Subtracts using a pattern (less than 10)

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NCTM Publications

Principles and Standards for School Mathematics 2000

Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence

2006

References

Cross, Christopher T., Taniesha A. Woods, and Heidi Schweingruber, (eds). 2009. Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity. Washington, DC: National Academies Press.

Duncan, Greg J., Chantelle .J. Dowsett, Amy Claessens, Katherine Magnuson, Aletha C. Huston, Pamela Klebanov, Linda S. Pagani, Leon Feinstein, Mimi Engel, Holly Sexton, Kathryn Duckworth and Crista Japel. 2007. "School Readiness and Later Achievement". *Developmental Psychology*, 43, 1428-1446.

Greenberg, Jan. 2012. "More, All Gone, Empty, Full: Math Talk Every Day in Every Way." *Young Children*. May 2012, 67 (3) 62-64.

Shillady, Amy (ed). 2012. Spotlight on Young Children Exploring Math. National Association for the Education of Young Children (NAEYC). Washington, D.C.

Stafford, Ann K., Pam Tabor, and Robert Wright. 2006. Student Numeracy Assessment Progressions. Nashville, TN: US Math Recovery Council.

Witzel. Bradley S., Christine J, Ferguson, and Deborah V, Mink. 2012. "Number Sense: Strategies for Helping Preschool through Grade 3 Children Develop Math Skills." *Young Children.* May 2012, 67 (3): 89-94.

Resources

Copley, Juanita V. 2010. The Young Child and Mathematics. Second Edition. Washington, D.C. NAEYC.

Diller, Debby. 2011. Math Work Stations. Portland, ME. Stenhouse Publishers

Geist, Kamile, Eugene Geist, and Kathleen Kuznik. 2012. "The Patterns of Music: Young Children Learning Mathematics through Beat, Rhythm, and Melody." *Young Children*. January 2012. 67 (1): 74-79.

Stern, Frances. 2011. Adding Math, Subtracting Tension. Reston, VA: National Council of Teachers of Mathematics.

Various articles. *Young Children* May 2009. 64 (3). This issue focuses on Mathematics.

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