Eyes on

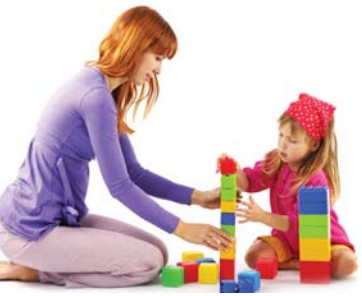
Numeracy

It adds up to more than counting

PARENTS

Centre of Excellence for Early Childhood Development

STRATEGIC KNOWLEDGE CLUSTER ON EARLY child development



"Numerical skills often emerge during the preschool years when children are exposed to different patterns, quantity, and space in everyday activities."

What do we know?

- Numeracy refers to a broad range of number-related concepts and math skills such as:
  - Knowing the names of numbers;
  - Seeing the difference between groups with a different number of objects;
  - Being able to count objects;
  - Adding and subtracting.
- Numeracy involves several developmental processes. Performance on numerical problems is likely to vary across children depending on their age and their exposure to numbers and numerical reasoning.
- Numerical skills often emerge during the preschool years when children are exposed to different patterns, quantity, and space in everyday activities.
- During the first year of life, infants become increasingly able to recognize that two sets do not possess the same number of objects. This early ability is especially evident when the number of objects is small (3 or fewer) and also when the ratio between the two sets is large (ex., a plate of 5 cookies vs. a plate of 20 cookies).
- In the toddler years, children start to gain an understanding of what numbers mean. For example, they recognize that any set of three elements is bigger than a set of two.
- As they grow older, children learn to count objects, to understand that the last number of a count is the number of objects in a set, and to understand adding (more) and subtracting (less). These skills are fostered by the development of language.
- Language acquisition helps children to:
  - Know the name of numbers;
  - Develop a number sense (ex., to know what "5" is in different situations: 1 + 4; 3 + 2; ☆☆☆☆☆);
  - Solve verbal problems;
  - Produce sums and differences in an accurate manner.
- Children's numerical abilities during the preschool years predict later success in school.

Paying attention to...	What can be done?
... the way your child explores and practices his math abilities in unstructured activities.	■ Create spontaneous educational moments that encourage your child to think and talk about numbers. For example, ask him how many socks he should get from his sock drawer. Explain to him that he needs two by pointing one foot at a time ("One and one equal two").
... activities that best suit your child's age and stage of development.	■ Expose your child to numbers in different domains to help him recognize patterns, numbers, and shapes. – **Play:** dice-throwing games and board games that involve counting. – **Art:** drawing a number of stars. – **Music:** keeping a tempo of 2 or 3 beats.
... materials that will help your child develop numeracy skills.	■ At an early age, give your child puzzles, blocks, and shapes of different colors and sizes. ■ Help your child learn the labels for single-digit numbers (i.e., 0 to 9).
... a balanced approach consisting of: – periods of free play, an important source of learning in children; – periods of structured guided play.	■ Provide materials that allow your child to engage in number-related play on his own. ■ Help your child to recognize the relations and patterns among numbers and objects. For example, ask him to: – Arrange blocks from the biggest to the smallest; – Group shapes that have the same colors; – Label different shapes (square, triangle, rectangle); – Count the sides of different shapes.
... the use of number and math words when solving problems with your child.	■ When your child is playing with blocks, ask him for example "How many blocks would be left if I *take away* two blocks from the set of seven? You're right! The new set contains five blocks now." ■ Count objects with your child aloud and emphasize the last number to show him it represents the number of items in a set (ex., "One, two, three, four, and **FIVE**; yes, there are **FIVE** cookies in the plate").

Encyclopedia on Early Childhood Development

Information

This Key Message is a publication of the Centre of Excellence for Early Childhood Development (CEECD) and the Strategic Knowledge Cluster on Early Child Development (SKC-ECD).

These organizations identify and summarize the best scientific work on early childhood development. They disseminate this knowledge to a variety of audiences in formats and languages adapted to their needs.

For a more in-depth understanding of Numeracy, consult our synthesis and Experts' articles on this topic in the Encyclopedia on Early Childhood Development, available free of charge at www.child-encyclopedia.com.

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