Cognition | ECLKC

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Cognition, or cognitive development, includes reasoning, memory, problem-solving, and thinking skills. Young children use these abilities to make sense of and organize their world. By the time children reach the preschool years, their cognitive skills have grown so much that they can engage in complex mathematical thinking and scientific reasoning.

Infants and toddlers play an active role in their own cognitive development by exploring and testing the world around them. Through these explorations and experiments, and with the support of parents, teachers, and other adults, infants and toddlers begin to understand basic mathematical, spatial, and causal relationships. More and more, infants and toddlers can rely on their developing memory to help them make sense of the world. All this activity in the first three years lays the foundation for the more complex cognitive skills children will build as preschoolers.

For preschoolers, cognitive development is presented as two different domains: Mathematics Development and Scientific Reasoning. This separation highlights the increasingly complex and more differentiated cognitive abilities of this age group. **Mathematics Development** in preschoolers refers to understanding numbers and quantities, their relationships, and operations, such as what it means to add to and take away. Mathematics also includes shapes and their structure, reasoning, measurement, classification, and patterns.

Scientific Reasoning is the emerging ability to develop scientific knowledge about the natural and physical worlds. Children begin to learn scientific skills and methods and continue developing reasoning and problem-solving skills. For preschoolers, scientific investigation includes making observations, recording them, talking about them, and analyzing them. Problem-solving and reasoning become more complex as preschoolers gain new abilities to ask questions and gather information.

To read more about this domain, visit the Interactive Head Start Early Learning Outcomes Framework.

The Cognition domain includes the following sub-domains:

Infants and Toddlers

- Exploration and Discovery
- Memory
- Reasoning and Problem-Solving
- Emergent Mathematical Thinking
- Imitation and Symbolic Representation and Play

Preschoolers

- Counting and Cardinality

- Operations and Algebraic Thinking
- Measurement
- Geometry and Spatial Sense
- Scientific Inquiry
- Reasoning and Problem-Solving

Effective Teaching Practices

The effective teaching practices that follow are grouped in three categories: Interactions, Environment, and Individualization. Examples of ways to support goals for children are provided by sub-domain. It is likely, however, that these practices will also support goals for children in additional domains and sub-domains. This is the nature of teaching and learning in the early years.

Topic: School Readiness

Keywords: Cognitive development

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