DOMAIN 1: APPROACHES TO LEARNING AND COGNITIVE DEVELOPMENT

SUB-DOMAIN: COGNITION AND COGNITIVE PROCESSES

REASONING AND LOGIC/ PROBLEM SOLVING

GOAL 12: CHILDREN USE CONJECTURE, HYPOTHESIZING, AND GUESSING.

Age Range	Developmental Growth	Child Indicators	Caregiver Strategies
First, Second, and Third Grades	Uses the scientific method routinely, including hypothesis making and testing, prediction and estimation, evaluation, and conclusion documentation.	▪ Transfers and generalizes some kinds of problem-solving patterns and schemas to new situations and predicts outcomes. ▪ Has clearer understanding of other peoples' actions and emotions, as separate from own. ▪ May predict intent of other child's actions. ▪ Uses problem-solving process, which includes classifying and reframing within co-constructed meaning. ▪ Uses problem solving, which includes planning and mental representations of tasks, and is able to focus on the most relevant information. ▪ Develops the capacity for purposeful experimentations and plans for a range of solutions. ▪ Can delay gratification to find a solution.	▪ Recognize the impact of children teaching one another. ▪ Ask real questions to help children expand and explain their thinking (e.g. "Have you figured out why the vinegar in your mixture smells so strong?" "What was the difference when you used the watercolor on wet paper and when you tried it on dry paper?"). ▪ Guide the children to explain their thoughts in relationships to solving activities, problems, experiments, and situations. ▪ Arrange opportunities for children to work in small groups or teams. ▪ Engage children in "if/then" scenarios that are both fanciful and realistic (e.g. "If cows could fly, then …" or "If a car has a flat tire, then …"). ▪ Offer a variety of starter ideas and materials to create experiments. ▪ Observe activities and listen to children's comments to determine what you might include in lesson plans to expand their ability to think using the scientific method. ▪ Demonstrate, explain, and engage child in taking steps to cause an outcome.