Professional Development Toolbox

Interactions and Teachable Moments





Promoting Mathematical Reasoning

- Have teachers read "Math Play" by Doug Clements. Together discuss the strategies for enhancing math in everyday play listed in the article. Ask teachers to identify a strategy have found to be successful. Ask teachers to share one example of when they implemented an effective strategy and why it worked. Reflect together about how this interaction experience might be replicated in another area or with another child. (PCF, Vol. 1, p. 275)
- Ask teachers to identify the two most popular areas in the classroom and have them choose on of those areas to focus on. Brainstorm together on all of the possible teacher questions and sentence starters that could enhance the children's problemsolving and mathematical thinking in the identified areas. Ask teachers to choose 3-5 items on the list to post in the area as a reminder to all teachers to continue to enhance mathematical thinking. (PCF, Vol. 1, p. 292)
- Invite teachers to read page 88 of Family Partnerships and Culture. Call special attention to the following sentence: "Children's early mathematical knowledge and skills develop and are strengthened through the math-related experiences they have at home (Benigno and Ellis 2008)." Then pose the following question: How can you

learn about—and then expand upon—the mathematical learning experiences children have at home?

Promoting Measurement

- Suggest teachers make a word wall of comparison vocabulary in multiple languages to remind staff and parents to reinforce this vocabulary in natural play opportunities. (PCF, Vol. 1, pp. 274-275)
- Model how teachers can observe and highlight measurement in play. For example, "You are building a taller structure now. Earlier you built a shorter structure." (PCF, Vol. 1, p. 276)
- Work with the teachers to explore all the materials commonly used at the sand/water table (sensory table) in the classroom. Ask teachers to identify the measurement vocabulary that could be experienced and enhanced with these materials. (NOTE: Make sure estimation vocabulary is included in the list.) Suggest the teacher make a list of words to use in the area and post it on the wall above the table. (PCF, Vol. 1, p. 278)
- Give teachers a copy of the article, "Mathematics in the Preschool," by Doug Clements. Ask them to take notes over the next few weeks on opportunities they take to focus children's attention on measurement and have them share their experiences on the next visit.

Promoting Number Sense

- Discuss the powerful impact of using numerical vocabulary and counting in meaningful daily interactions. Using the current daily schedule, ask teachers to identify all the possible times in which counting could become a daily ritual. Support teachers in making a plan to add two new counting routines throughout the day. (PCF, Vol. 1, p. 244)
- Discuss the value of creating repetitive counting experiences in both the child's home language and English throughout the day. Work with the teachers to identify times of the day in which counting is currently part of the daily routine. Which of the identified times could also be in a home language? Create a concrete action plan for adding counting in a child's home language in the daily schedule. Include in the action plan how the teachers will learn to count in the child's home language. (PCF, Vol. 1, p. 244)
- Share the "Questions Related to Number Concepts" handout from the Number Sense module with the teachers. Have each teacher choose three questions to write on a 3x5 card. Suggest that teachers carry the card in an apron or pocket as a reminder to ask children these questions throughout the day. (PCF, Vol. 1, p. 245)

Promoting Algebraic Function

Suggest that teachers observe children sorting in play. Have teachers ask a child for permission to photograph the sorted materials and then ask the child to dictate the experience of sorting. Create a display that children, families, and teachers can discuss. (PCF, Vol. 1, p. 262)

- Model how to observe and acknowledge patterns children make in natural play; e.g., "Oh wow, there is a pattern in the grass. Hoola hoop-bean bag, hoola hoop-bean bag." (PCF, Vol. 1, p. 266)
- Give teachers a copy of "Learning Paths and Teaching Strategies in Early Mathematics" (NAEYC). Direct teachers to try one of the strategies listed for algebra before the next meeting. At the next meeting, ask about their experiences using the strategy.

Promoting Geometry

- Work with the teachers to find a few common shapes in the classroom. Read together the "Talking about Geometric Shapes" handout from the Geometry module. Take turns practicing all the things to say about the shapes the teacher chooses from the classroom. Then practice what not to say about the shapes. (PCF, Vol. 1, p. 283)
- Suggest the teachers post the "Talking about Geometric Shapes" handout in the room and challenge the teachers to help each other practice what and what not to say. (PCF, Vol. 1, p. 283)
- Give teachers a copy of the article, "Ten Creative Ways to Teach Math," by Doug Clements. Work with teachers to identify one strategy they are already using to teach geometry concepts and two new strategies to try before the next visit.

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