

Kindergarten Numeracy Development: Quantifying

Developmental aspects	Emerging With direct support... 	Developing With guided support... 	Applying With minimal support... 	Extending 
The Child	With direct support, and teacher modeling, may participate and may attempt to make sense of mathematical experiences.	With guided support, demonstrates a willingness to explore mathematical ideas while participating in problem solving experiences. Is beginning to show an awareness of numbers, space and time used in everyday life.	With minimal support, demonstrates interest in and a willingness to explore mathematical ideas while purposefully participating in problem solving experiences. Communicates an awareness of how numbers, space, and time are used in everyday life.	Shows interest and curiosity while purposefully exploring mathematical problem solving experiences. Perseveres. Makes and explains connections to numbers, space and time as used in everyday life.
Understanding Number				
Quantifying	With direct support, may count small quantities and may recognize some dot patterns.	With guided support, counts quantities (e.g. to 6 or 7) and recognizes some dot patterns.	With minimal support, counts quantities (e.g. to 10) and recognizes dot patterns, (e.g., dice).	Consistently and accurately counts quantities to 10 (min.) and recognizes number patterns (e.g. dice, ten frames).
The Support/Scaffolding*	The Model: showing, instructing, explaining, directing, making explicit, demonstrating, giving examples	The Coach: structuring, sequencing, focusing, cueing, guiding, organizing, supporting	The Advisor: suggesting, reminding, prompting, monitoring, asking for elaboration	The Mentor: extending, stretching, wondering aloud, exploring, "what if-ing"
*a variety of supports (teachers, peers, environmental, etc.) can be provided at any stage of development				

Scenario: Children are practicing building sets to match dot patterns. Each pair of children has a set of dot-patterned cards, counters, and a ten-frame mat. One child shows a dot card and the other builds that number onto the ten-frame mat. The first child checks the count, and then they switch roles.



Direct Support

Willow and Jason are working together. Jason is providing direct support to Willow by *instructing* her to count the dots and to match the quantity on the ten-frame. The teacher sees that Willow is waiting for Jason to do it, and intervenes to encourage Willow to try herself. She *shows* how they could use two ten-frames so that Jason can *model* and Willow can copy. This is a challenging activity for Willow, but the peer support and cooperation is valuable for both. The teacher thinks this might be a good activity to do with their big buddies next time.



Guided Support

Muhammad and Nila are working together. Muhammad puts counters on the ten-frame but they don't match the dots. The teacher gives guided support by *focusing* Nila on how to *coach* Muhammed respectfully. With this *support*, Nila recounts the dots with Muhammad, and *guides* him as he changes the counters to match.



Minimal Support

Nico and Jeff are working together. They are recognizing some of the dot patterns without counting, and they are usually building a matching set on the ten-frame with accuracy. The teacher, using minimal support, *prompts* them by asking, "Can you change from 6 to 8 without taking away all the counters first? Is 6 part of 8?" The boys talk about it and see that they can do this.



Without Support

Isabella and Sofia quickly recognize dot patterns. Without support, they have figured out that they don't need to remove all counters to make the next number (e.g., they know that 6 is part of 8). They are changing their set to match the new number by adding or subtracting as necessary. The teacher *extends their thinking* by asking if they can say what needs to change for each new number before they make the change, (e.g. "I need three more", or "I need to take two off.")



Given time and support, children gradually move from a reliance on counting to using grouping and number relationships in creative ways.