

Kindergarten Numeracy Development: Communicating Using Math Vocabulary

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.
Processes				
Communicating using math vocabulary	With direct support, may imitate, copy, repeat a limited math vocabulary.	With guided support, uses and understands basic math vocabulary.	With minimal support, uses and understands a wide math vocabulary.	Uses and understands an extensive math vocabulary including comparative language.
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: This kindergarten teacher is helping her class make a graph of their favourite ice cream flavours. During circle time, she has asked each student to name their favourite flavour of ice cream. The class has decided which colour to use for each flavour, and the students have each coloured an ice cream cone shape to match their favourite flavour. The students have arranged their coloured cones in rows to make a pictograph, with each flavour in its own row. Now they are engaged in a partner conversation to compare two rows at a time and decide which has more and which has fewer.



Direct Support

During this activity, the teacher notices that Ben is confused. When he places his ice cream cone with the others he adds it to the longest row, but it does not match the flavour. Realizing that he needs direct support, the teacher asks Ben to name the colour of his cone. Then she *instructs him* to find where it belongs by pointing to each row and saying, "Strawberry goes here because it is red. Chocolate goes here with the brown ones. Bubblegum is pink. It goes here. Ben places his ice cream cone in the correct row, but it is sideways and not lined up with the others.



Guided Support

Chantal and Kerri have been able to place their cones in the correct rows, but during the partner activity the teacher notices that they are struggling with which groups have more and which have fewer. She *guides* them to think about two groups at a time, and talks them through the comparison. "Are there more strawberry or more chocolate?" "Are there more chocolate or bubblegum?" With this guided support, the two girls are able to see which has more and which has fewer each time.



Minimal Support

Kieran places his ice cream cone in the correct line, but cannot explain why he has done so. The teacher provides minimal support by showing him a group of cones placed randomly, and asking him to compare it with the graph where the cones are organized in a line. The teacher's *prompting* helps Kieran explain that organizing the cones in lines shows which has more and which has fewer.



Without Support

Without support, Saraan looked around the classroom while students were colouring and announces, "I think chocolate is going to win." During the comparing task, she was able to compare all the groups and say which group had more each time. When the teacher asks the class, "How many cones do you think we have altogether, Saraan answers "Seventeen." When asked why she thinks so, she says, "I just know that everyone did one. There's 17 people here today."



Visual cues and formats support learning.