Student Name: _____

Kindergarten Numeracy Development: Comparing Quantities

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				
Comparing quantities	With direct support, may show which quantity is more or less than another, or the same.	With guided support, matches materials to compare quantities. May use terms more, less, or same.	With minimal support, counts or matches quantities to determine more, less or same.	Recognizes, explains, and models which quantity is more, less, or the same as another.
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: The children are working in partners with Unifix cubes to make "trains" of different lengths. Each partner takes a handful of interlocking cubes and makes their handful into a train. Then the partners stand both their trains up on a level surface and compare them. They have been asked to compare which partner's train has more and which has fewer, or whether the two trains have the same number of cubes. Then they are to record their comparison on a table, showing who had more and who had fewer each time they build their trains.

Direct Support

An educational assistant (EA) is working with a small group of six children who need direct support. As he *explains* each step, the children follow. He *shows* them first how to take one handful and make a train. When everyone has finished, he *demonstrates* how to line up the trains to compare them. Then he pairs the children into partners. Each pair takes turns comparing their trains. As they do this, the EA *models* comparative language, which the children repeat.

Guided Support

Xavier and Morgan are working together to record their comparisons. They have no trouble saying whose train has more, but they are struggling with the idea of fewer. The teacher joins them to provide guided support. She *focuses* on the idea that if one of the trains is more, then the other one is fewer because it has not as many cubes. Together they look at several examples from a book that illustrates more and less, to confirm the concept.

Minimal Support

The teacher *monitors* the other students as they work, and observes that Rhett and Faye need minimal support. They can easily compare their trains and are trying to count and record how many are in each train, as well as putting their names under "more" and "fewer." They have discovered that they often have the same number in their trains because they both have small hands. The teacher *suggests* that they try using scoops from the sand centre to pick up the cubes and continue the game.

Without Support

Isaiah and Ramon have decided to use two hands to scoop their cubes. Without support, they have discovered that they get more variety in their trains that way. The teacher shares their excitement and *wonders aloud* why this is happening. The children eagerly express their ideas and decide to try other tools for scooping cubes.

A developmentally appropriate curriculum encourages the exploration of a wide variety of mathematical ideas in such a way that children retain their enjoyment of, and curiosity about, mathematics.
Curriculum and Evaluation Standards for school Mathematics, 1989, p. 16