Mathematics: Counting and Cardinality

K.CC.4a K.CC.6	**Cluster Headings:** Count to tell the number of objects. Compare numbers **Content Standards:** Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. **Practice Standard: MP6** Attend to precision, **MP 1** Make sense of the problem and persevere in solving them.

Problem/Task Suggestion	Formative Assessment Suggestions

Rolling a Number Cube

Give pairs of students several unifix cubes and a number cube with numerals on each side. Adjust the numerals on the number cubes to address the current needs of the students. Students take turns rolling a number cube and counting out the number of unifix cubes indicated. The child then snaps the counted cubes into a train and compares his/her train to a partner to see who has more.

After each child has had 5 turns, have him/her look at the five individual trains and try to see who would have the most if they snap the trains together. After estimating who may have more they each snap their 5 trains together and **lay** them beside each other to see which is longer. Finally they may count to see how many are in each long train.

Differentiation
Support
- Use a large foam rubber number cube with dots rather than numerals. When the student rolls the number cube, he/she places a unifix cube on each dot, then snaps them together. Next step is to use a number cube with dots and numerals.

Extensions
- Roll two number cubes and find the sum to determine the number of unifix cubes to snap together and compare.
- Determine who has more and how many more.

Observation of Students

Does the student
- Demonstrate the verbal counting sequence?
- Recognize the rolled numeral and take that many cubes?
- Use 1-to-1 correspondence skills?
- Have a way of keeping track of his/her count?
- Realize the last number said indicates how many she/he has?
- Know which train is bigger by prior knowledge, estimating or by matching?

Questions to Guide Student Thinking
- Do you know which ones you have counted?
- Where could you put the counted cubes?
- Tell me how you know which train has more cubes.

Misconceptions
Students may not understand the last number they say indicates how many items are in the set.

Vocabulary Considerations
Greater than, less than, equal to

Task adapted from: *Developing Number Concepts: Counting, Comparing, and Patterns Book 1* by Kathy Richardson, Apr 16, 1998