K(2) Number and operations. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system.
$\mathbf{K}(\mathbf{2})(\mathbf{B})$ The student is expected to read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures.
$\mathbf{K ( 2 ) ( C )}$ The student is expected to count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order.

## Materials

- 20 counters

Procedure: Create set of counters in random arrangements. For example, 8 counters, 10 counters, 14 counters, 18 counters, 20 counters, etc.

## How many counters are in this set?

The student may respond in verbal or written form.
This activity may be repeated using different numbers or by creating different arrangements of the same number.

## Check Student's Response:

Correct
Another Number: $\qquad$ No response

## Check Student's Strategies:

The student:
Counted objects by touching each one once and only once - but did not say numbers out loud.

- Touched objects and said counting numbers out loud for each one.
$\square$ Said number words aloud but did not use one-to-one correspondence to accurately count the objects in the set.
$\square$ Counted one or more objects more than once.
$\square$ Rearranged objects into a different formation then counted each object only once.
$\square$ Said counting numbers aloud without touching objects.
$\square$ Looked at objects without touching them.
$\square$ None observed.


## Notes:

$\mathbf{K ( 2 ) ( B )}$ The student is expected to read, write, and represent whole numbers from
0 to at least 20 with and without objects or pictures.
$\mathbf{K}(\mathbf{2})(\mathbf{C})$ The student is expected to count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order.

Possible interpretations, issues to follow up on, and implications for teaching

## What did you observe?

- The student looked at the objects without touching them. Consider how he or she figured out how many objects many were in the set:
- The student counted silently.
- The student looked at a subset, and immediately recognize that a group of 4 objects was 4 objects and used counting on from the number 4.
- The student used subitizing.

A teaching strategy might include teaching students ways to check their answers, in this case, by recounting objects one-by-one.

- The student touched objects and said counting numbers out loud for each one. If the student can do this kind of enumeration, he or she may be ready to solve simple addition problems by counting all or counting on.
To assess readiness for addition, once the student has counted a set of objects, add one or two more and ask, "How many are there now?" Prompt the student to justify his or her response.
- The student arranged the objects into a line (or an organized arrangement). Consider whether or not the student understands that when an object(s) are moved the last number tells the number of objects in the set regardless of their arrangement or order.
- The student said the counting numbers aloud. Consider the following:
- The student repeated the last number in the counting sequence (e. g, 7...8... 8 [objects]). Consider whether he or she understand that each counting word corresponds to one object AND the total number of all objects counted.
A teaching strategy may involve challenging the student to determine how many objects are in a set after counting. For example, ask the student to count the number of stickers on an index card; once the student has counted the number of stickers, hide the card and ask, "How many stickers am I hiding?"
- There were no strategies were observed.

Follow up with an additional task, classroom observation, or questioning may allow you to determine how the student determined the answer.

