MA.K.NSO.1.1

Overarching Standard: MA.K.NSO.1 *Develop an understanding for counting using objects in a set.*

Benchmark of Focus
MA.K.NOS.1.1: Given a group of up to 20 objects, count the number of objects in that group and represent the number of objects with a written numeral. State the number of objects in a rearrangement of that group without recounting.

Benchmark Clarifications
Clarification 1: Instruction focuses on developing an understanding of cardinality and one-to-one correspondence.

Clarification 2: Instruction includes counting objects and pictures presented in a line, rectangular array, circle, or scattered arrangement. Objects presented in a scattered arrangement are limited to 10.

Clarification 3: Within this benchmark, the expectation is not to write the number in word form.

Related Benchmark/Horizontal Alignment

- MA.K.NSO.2.1/2.2
- MA.K.NSO.3.1/3.2
- MA.K.AR.1.1/1.2
- MA.K.M.1.2/1.3
- MA.K.DP.1.1

Vertical Alignment

Previous Benchmarks	Next Benchmarks
• VPK	• MA.1.NSO.1.1

Terms from the K-12 Glossary

- Cardinality Principle
- Natural Number

Purpose and Instructional Strategies
The purpose of this benchmark is to help students develop an understanding of cardinality: the principle that the last number when counted in a set represents the total number within the set, and that the number of objects in a set remains the same regardless of the arrangement of

the set. Additionally, this benchmark allows students to begin recognizing and writing numerals.

- Instruction includes the use of manipulatives, pictorial representations and real-world contexts to provide a purpose for counting. *(MTR.2.1, MTR.7.1)*
- Instruction includes symbolic representation of numbers 0 – 20. *(MTR.7.1)*

Common Misconceptions or Errors

- Students may inaccurately report the number of objects in a set that has been rearranged even though the number was accurately counted before the set was rearranged (i.e., conservation of cardinality).
- Students may recount the number of objects in a set that has been rearranged even though the number was accurately counted before the set was rearranged.
- Students may recount a group of objects when asked "how many," rather than reporting the last number counted.
- Students may not be systematic in their counting. (For example, a student may double count or skip numbers.)

Questions to ask students:

Show students a collection of objects arranged in a line and ask students, "How many do you think there are?" Ask students to count the objects and follow up with, "How many are there?" Use same collection of objects to arrange randomly. Ask students, "How many are there?"

- Sample answer that indicates understanding: *Students keep track of objects counted, identifies the last number stated as the total number counted, and correctly counts objects in a line and in random arrangement.*
- Sample answer that indicates an incomplete understanding or a misconception: *Students skip number names in standard order or does not keep track of objects counted.*

Was it hard to count the objects when they were scattered? What could you do to make counting them easier?

- *I could arrange them in a line. I could touch each one and move or mark it.*

How could you be sure not to miss any objects when counting?

- Write the number that represents the total number of objects in the set.

How could you determine the total in this group without recounting?

- We want students to understand that the last number counted represents the total in that group.

Instructional Tasks
Instructional Task 1
Teacher gives students a number of objects to count (between 0 and 20).

Part A. Observe as students count, mapping each number to one object. Ask the student, *How many in all?* Students should report the last number counted without having to recount the set.

Part B. Once the student has reported the numbers of objects, rearrange the orientation of the objects, and ask the student again. Students should report the number without recounting. Ask the student why they needed or did not need to count the set again after the set was rearranged.

Instructional Items
Instructional Item 1

Count and tell the total number of stars.

Instructional Item 2

The stars have been rearranged. How many stars are there now?

Instructional Item 3 (image of a calendar provided)
How many days are in a week?

How many Mondays are in this month?

How many Saturdays and Sundays are in the month?

Additional Resources:
CPALMS

Khan Academy Video: Counting with Small Numbers

Video: One to One Correspondence for Counting

Resources/Tasks to Support Your Child at Home:

Have the student count a set of objects (cereals, counters, pennies). While they are counting, have them place their items on a hundred chart to count on.

Give student a set number of objects within 20. Have them give one away, counting how many they have left each time until they get to zero.

ABCya Online Game: Number Bubble

Math Learning Center: Number Frames