

[Illustrative Mathematics](#)

K.CC Assessing Counting Sequences Part II

[Alignment 1: K.CC.A.2](#)

This activity is designed to determine the appropriate instructional level for a student in a one-on-one interaction with the teacher.

The teacher will need paper and pencil to record the student's reactions. It is best to find a time and place where the student is comfortable and not distracted. Record the exact language of the student's counting, including hesitations, substitutions, and errors, to help identify specific objectives for future lessons. If a student makes an error on a counting sequence, it is not necessary to continue; this is the place where the student needs instruction.

Say,

“Tell me the number after 2, after 5, after 8”

“Tell me the number after 10, after 13, after 16”

“Tell me the number after 20, after 24, after 29”

“Tell me the number after 55, after 79, after 87”

Note: The teacher may have to prompt a student if he or she gives the number before the target rather than the number after the target number with language like, “That is the number before. What number comes after?”

Commentary:

- Students may benefit from visualizing a number line when attempting these tasks. The teacher can point to an empty tabletop and say, "Pretend the numbers are here, 1,2,3,4,5,6,7,8,9,10." Then when asking, "Tell me the number after," point to the approximate location on the imaginary number line that the number would be. This can be helpful for students who do not seem to understand the language of number after or number before.
- Sub-vocalization is a common student strategy that should be noted when assessing a student's facility with number after; if students need to count quietly under their breath to get a "running start" in order to come up with the number after they are not yet totally flexible with the number sequence and need additional practice. For the number after 8 this might sound like whispered "1,2,3,4,5,6,7,8,9" then more loudly "9." Long pauses before a student gives an answer with number after tasks may also indicate extra counting "in my head" used to figure out the number after. This also indicates a need for additional practice.
- When students are ready to solve problems using a strategy other than count from one, flexibility with number after and before will support the ability to count on from various places.
- It is important to also assess student knowledge related to number before. The teacher can give tasks using the number ranges similar to those listed above by just asking what number comes before another number.

Solution: Solution

In addition to errors and omissions, the teacher will want to record any sub-vocal counting or long pauses on the part of the student; this indicates when the student is unsure or working at the edge of his or her understanding.

Be sure to note any support given to the student such as before/after prompting or imaginary number line reference that is necessary to help the student move forward. Students who can continue, with cues, are again, working at the edge of what they know.

The task is broken into number ranges 1-10, 10-20, 20-30 and 30-100. These number ranges are chosen because, generally, as students progress to larger numbers they have control over the counting sequence and can apply it to a broader range of numbers. Put another way, students who are secure between 50 and 60 are also secure between 60 and 70. For this reason, the last range of numbers is a category that covers a broader range as well.

A student may not be able to give the number after a given number at all or may need to use sub-vocal counting.



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