

## Sample Counting Concepts Activity 1: Count to Tell the Number of Objects

### College- and Career-Ready Standards Addressed:

K.CC.4. 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 number with one and only one number name and each number name with one and only one object.
- b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- c. Understand that each successive number name refers to a quantity that is one larger.

K.CC.5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1 to 20, count out that many objects.

### Activity One: Using Manipulatives to Demonstrate Rational Counting

**Purpose:** Count up to 20 objects in a group; connect counting to cardinality.

**Materials:** Small, concrete manipulatives such as Unifix cubes, clips, toy animals, chips, or base-10 blocks (available for download from NCII)

Student Worksheet: Counting Activity 1 (available for download from NCII)



**Modeling:**

1. Review **rote counting** (i.e., stating the number words in order) to 20 with the student. (Use nursery rhymes, chants, songs, or YouTube videos such as [Counting Numbers 1–10](#) or [1–20 Chant!](#) by [ELF Learning](#) to practice rote counting.)
2. Tell the student counting is used to tell *how many* of something.
3. Place a handful of objects (fewer than 10) in a straight line.
4. Demonstrate touching each object one at a time, slowly, stating the number word for each object as you touch it. Tell the student the last number word said tells *how many* there are. “One, two, three, four, five, six, seven. The last number I said was seven, so there are seven animals.”
5. Tell the student, “Let’s do this together. I’ll point and you count with me.” Repeat touching and counting each object; have the student count with you while you point.
6. Tell the student, “Now I’m going to move the animals around so they’re all mixed up.” Take the same set of objects and rearrange them in a scattered assortment.
7. Ask the student how many animals there are now. Allow the student to answer, then demonstrate touching each object one at a time, slowly, stating the number word for each object as you touch it. Tell the student the last number word said tells *how many* there are. “One, two, three, four, five, six, seven. The last number I said was seven, so there are seven animals.”
8. Confirm with the student that the amount of objects (i.e., the set’s cardinality) does not change simply because the objects have been moved around; whether they are in a straight line or all mixed up, the total amount remains the same.
9. Repeat with at least two more sets of objects (e.g., four Unifix cubes and 19 chips). Have the student count with you as you touch each object.

**Guided Practice:**

1. Place a handful of objects (e.g., 10 candies) on the table in a random assortment. Point to and touch each object, while the student counts out loud. Have the student state *how many* objects there are on the table.

2. Now, using the same set of objects, rearrange them to line up in a straight line. Have the student predict how many there are in the set now; then, touch each object while the student counts. Have the student state *how many* there are and confirm the lined-up set of objects is the same amount as the original, randomly assorted pile.
3. Repeat with at least two more sets of objects (e.g., six Unifix cubes, 17 clips).
4. Have the student place a handful of objects (e.g., 12) on the table, in a random pile. Have the student point to and touch each object, assigning cardinality to the set. Have the student arrange objects in a line, predicting how many there are. The student touches and counts each object again, confirming the amounts are the same.
5. Repeat with at least two more sets of objects (e.g., 18 animals, 20 candies).

#### **Corrective Feedback:**

##### **Example 1: Coordination Errors**

Student response: The student has difficulty coordinating rote counting (number words) with touching the objects.

Teacher feedback: Provide an audible signal (e.g., a finger snap, a clap, a small bell) to signal each transfer between objects.

##### **Example 2: Omission Errors**

Student response: The student misses items when counting (i.e., skips over an object and does not assign it a number word).

Teacher feedback: Have the student physically move each object as it is counted. For example, the student moves each item from the tabletop to a paper plate or counting mat as it is counted.

##### **Example 3: Double-Count Errors**

Student response: The student touches an item more than once when counting (i.e., touches an object and says “three,” then touches it again and says “four”).

Teacher feedback: As with Example 2, have the student physically move each object as it is counted. For example, the student moves each item from the tabletop to a paper plate or counting mat as it is counted.

#### **Example 4: Idiosyncratic Counting Sequence Errors**

Student response: The student touches items appropriately but does not state numbers in the correct order (e.g., while counting, states, “one, two, three, five, four, six, seven”).

Teacher feedback: Practice rote counting using chants, songs, nursery rhymes, or videos, following along by pointing to numbers printed on a number line while counting out loud.

Note: Regardless of the type of counting error, the teacher should always model the correct response and have the student demonstrate the correct procedure before moving on.

## Sample Activity 2: “Mr. Greater Gator” Comparison Poster

### College- and Career-Ready Standards Addressed:

K.CC.6. 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).

**Purpose:** To compare discrete sets of objects and state whether one group is greater, lesser, or equal to a second set.

**Materials:** Small, concrete manipulatives such as Unifix cubes, chips, or base-10 blocks/squares (available for download from NCII)

Three cards depicting “Mr. Greater Gator,” one of each depicting the gator as a “less than” sign (see below, left), “equal to” sign (see below, middle), and “greater than” sign (see below, right); cards depicting the symbols  $<$ ,  $>$ , and  $=$  with the words “less than,” “greater than,” and “equal to” printed below the symbol (available for download from NCII)

Poster for classroom depicting symbols and meanings (available for download from NCII)

Dry-erase board and markers or paper and pencil

Student Worksheet: Compare Numbers (available for download from NCII)



**Modeling:**

1. Introduce the student to “Mr. Greater Gator.” Put three cards on the table so the student can see them. Explain that **greater** is another word for **bigger** and that when we say one set is **greater than** another, that means it has **more**. Tell the student that Mr. Greater Gator is very hungry and turns his head to the bigger, or **greater**, set, unless they are the **same**. If the sets are the **same**, or **equal to**, each other, Mr. Greater Gator looks straight ahead because he can’t decide which to eat first!
2. Put a pile of candies or another object (e.g., 7) on the table. Then, put a much smaller amount (e.g., 2) on the table, separate from the first pile.

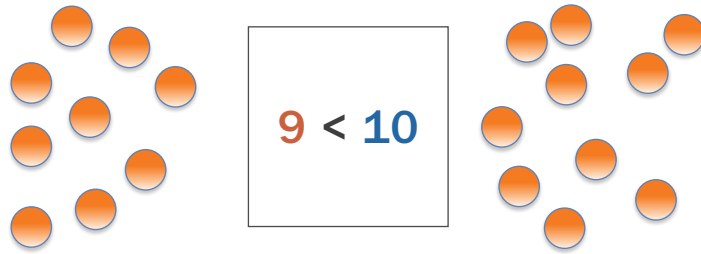
NOTE: It is important to exaggerate the difference in amount initially; one set should be markedly larger/smaller than the other.

3. Ask the student which pile is **greater** (i.e., which pile Mr. Greater Gator wants to eat). When the student indicates the first pile, show all three cards of Mr. Greater Gator. Place Mr. Greater Gator between the piles with his mouth open to the larger amount.



4. Tell the student Mr. Greater Gator is very hungry, so his head is turned toward the **greater** pile. Tell the student we say this set (*point to 7*) is **greater than** (*point to greater than sign*) this set (*point to 2*).
5. Repeat with sets of, for example, 1 and 9, 2 and 2, and 8 and 3. For each comparison, state whether one set is **greater than, less than** (i.e., *smaller than*), or **equal to** (i.e., *the same as*) its counterpart.
6. Clear the table of candies. Agree with the student that, so far, it was easy to tell which pile of candy Mr. Greater Gator wanted to eat because you could see by looking at the piles which one was **greater** (or if they were **equal**). Tell the student that sometimes you can’t tell just by looking which pile is **greater**.

7. Put 10 candies on the table in a pile; in a separate pile, put 9 candies.



8. Ask the student if he or she can tell just by looking which pile is **greater**. When the student indicates that he or she can't, suggest that the student count each pile to find out which one has more.
9. Line up the candies from the first pile. Touch each candy while counting out loud. State that there are 9 candies, and write "9" on the dry-erase board. Tell the student we write "9" to help us remember there are 9 candies in this pile.
10. Line up the candies from the second pile. Touch each candy while counting out loud. State there are 10 candies in the second pile, and write "10" on the dry-erase board. Tell the student we write "10" to help us remember there are 10 candies in that pile.
11. Tell the student you know Mr. Greater Gator should eat the 10 because 10 is greater than 9. Place the appropriate card between the 9 and 10.
12. Tell the student that to show which number is bigger, you can draw just Mr. Greater Gator's mouth. The gator's mouth is the sign we use in mathematics to tell which number is bigger than the other. Move the card aside and write "<" on the board. Point to the sign and then trace it on the gator's mouth. Tell the student that this sign means "less than." Read to the student while pointing to each symbol: "9 is less than 10."
13. Repeat with sets of, for example, 5 and 5, and 8 and 7.

- Guided Practice:**
1. Place a set of objects (e.g., 8 candies) on the table, in a random assortment. Place a second set of objects (e.g., 5 candies) on the table in a separate pile.
  2. Ask the student to decide which pile is greater. Have the student touch and count each pile, and write the amounts on the board.
  3. Have the student write “<,” “>,” or “=” between the numbers.
  4. Have the student read the equation out loud, using the correct vocabulary: greater than, less than, or equal to.
  5. Repeat with at least six examples so that the student has practice with each symbol (e.g., 2 and 2, 5 and 7, 8 and 3, 10 and 10, 4 and 6, 9 and 5).

**Corrective Feedback:**

**Example 1: Counting Errors**

Student response: The student makes **coordination, omission, double-count, or idiosyncratic sequencing** counting errors.

**Coordination Errors**

Student response: The student has difficulty coordinating rote counting (number words) with touching the objects.

Teacher feedback: Provide an audible signal (e.g., a finger snap, clap, or small bell) to signal each transfer between objects.

**Omission Errors**

Student response: The student misses items when counting (i.e., skips over an object and does not assign it a number word).

Teacher feedback: Have the student physically move each object as it is counted. For example, the student moves each item from the tabletop to a paper plate or counting mat as it is counted.

**Double-Count Errors**

Student response: The student touches an item more than once when counting (i.e., touches an object and says “three,” then touches it again and says “four”).

Teacher feedback: As with Example 2, have the student physically move each object as it is counted. For example, the student moves each item from the tabletop to a paper plate or counting mat as it is counted.



### **Idiosyncratic Sequencing Counting Errors**

Student response: The student touches items appropriately but does not state numbers in the correct order (e.g., while counting, states, “one, two, three, five, four, six, seven”).

Teacher feedback: Practice rote counting using chants, songs, nursery rhymes, or YouTube videos, following along by pointing to numbers printed on a number line while counting out loud.

### **Example 2: Writing Errors**

Student response: The student selects the appropriate “Mr. Greater Gator” card when comparing sets but struggles to write the symbol.

Teacher feedback: Using a utility knife or sharp scissors, cut out the shape of the mouth on the card so that the student uses the cut-out portion as a stencil and uses a pencil to trace the symbol correctly.

### **Example 3: Naming Errors**

Student response: The student writes the number sentence correctly but has difficulty remembering the terminology “greater than,” “less than,” and “equal to.”

Corrective feedback: Create cards (or posters) with the symbol printed directly above the word. Leave the cards on the desk (or the poster on the wall) for the student to refer to when working on this skill.

For all errors, the teacher should always model the correct response and have the student demonstrate the correct procedure before moving on.

## Sample Activity 3: “Count On” to Add and Subtract

### College- and Career-Ready Standards Addressed:

K.CC.2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

K.CC.7. Compare numbers between 1 and 10 presented as written numerals.

1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

### Part One: “Counting On” to Add

**Purpose:** Use the “minute” strategy to count on when adding two numbers within 20.

**Materials:** Addition flashcards (available for download from NCII)  
Timer  
The Best Time Scorecards (available for download from NCII)  
Small prizes (e.g., stickers, smiley-face stamps, free time on computer, goldfish crackers, and so on)  
Student Worksheet: “Counting On” to Add (available for download from NCII)

**Modeling:**

1. Show the student the flashcards and scorecard. Explain to the student that you are going to play a game in which the goal is for the student to beat his or her own score. Tell the student that his or her score is the number of flashcards he or she can answer correctly in one minute.
2. Tell the student that the fastest way to answer cards correctly is to know the answer right away. But, if the student gets a card he or she doesn't already know, he or she should “count up” on his or her fingers to find the answer.
3. Show the student the first flashcard in the pile (e.g.,  $2 + 2$ ). Say, “ $2 + 2$ . I know this one!  $2 + 2$  equals 4.”

4. Show the student the next flashcard (e.g.,  $7 + 4$ ). Pretend to not know the answer. Say, *“Hmmm.  $7 + 4$ . I don’t remember this one. I need to count up to find the answer. To do that, I put the bigger number in my head. I count up the smaller number on my fingers. 7 is the bigger number. 4 is the smaller number. I put 7 in my head. I put 4 on my fingers.”* Hold up 4 fingers.
5. *“I start counting with the bigger number. I keep counting up until I’ve counted on all the fingers I’m holding up. Then, my answer will be the last number I say! Watch me. 7...8, 9, 10, 11.”* (Wiggle each finger as you count.) *“The last number I say is the answer. So, 11 is the answer.  $7 + 4$  equals 11!”*
6. Show the student the next flashcard. This time, the first addend should be larger than the second addend (e.g.,  $3 + 6$ ). Remind the student of the commutative property of addition. That is, addends can be added in any order without changing the total amount:  $3 + 6 = 6 + 3$ . Ask the student which is the larger number, 3 or 6. Repeat step 5 with this flashcard.
7. Repeat with three more flashcards from the pile, modeling by thinking aloud to count up for each card.

**Guided Practice:**

1. Shuffle the cards and put the pile face down on the table.
2. Tell the student that he or she will have a short amount of time (one minute) to answer as many cards as possible and that you will put the score on the scorecard. Then, he or she will have another minute to try to beat the score. If he or she does, he or she wins the game and gets to have a prize. (See the list of materials for suggested prizes.)
3. Remind the student that the best way to score points is to know the answer to the math problem as quickly as possible. But, if he or she doesn’t know the answer, he or she should count up to find it.
4. Set timer for one minute, and turn cards over one at a time for the student to answer. If the student answers correctly, put the card in a “correct” pile. If the student answers incorrectly, have him or her repeat that card immediately, counting up to get the correct answer. Assist the student, as needed. Then, put that card in the “correct” pile.

5. After the timer beeps, count the number of correctly answered cards, and mark that score on the scorecard. Then, shuffle the cards and allow the student to repeat for a chance to beat the score. If he or she does, mark that score on the scorecard and reward the student with a prize. If he or she does not, set the timer and provide one more opportunity. Mark on the scorecard the highest score for the day and attempt to beat that score the next time you play.

## Part Two: “Counting On” to Subtract

**Purpose:** Use a counting-on strategy to determine the difference between two numbers.

**Materials:** Subtraction flashcards (available for download from NCII)  
Timer  
Graph to record performance data (available for download from NCII)  
Small prizes (e.g., stickers, smiley-face stamps, free time on computer, goldfish crackers, and so on)  
Student Worksheet: “Counting On” to Subtract

- Modeling:**
1. Show the student the flashcards and scorecard (available for download from NCII). Explain to the student that you are going to play a game in which the goal is for the student to beat his or her own score. Tell the student that his or her score is the number of flashcards answered correctly in one minute.
  2. Tell the student that the fastest way to answer cards correctly is to know the answer right away. But, if the student gets a card he or she doesn't already know, he or she should “count up” on his or her fingers to find the answer.
  3. Show the student the first flashcard in the pile (e.g.,  $2 - 1$ ). Say, “ $2 - 1$ . I know this one!  $2 - 1$  equals 1.”
  4. Show the student the next flashcard (e.g.,  $8 - 5$ ). Pretend to not know the answer. Say, “Hmmm.  $8 - 5$ . I don't remember this one. I need to count on to find the answer. To do that, I put the smaller number in my head. I count up to the bigger number. The number of fingers I have up is my answer. 5 is the smaller number. 8 is the bigger number. I put 5 in my head. I count up on my fingers until I get to the bigger number.”
  5. “I hold the smaller number in my head. I keep counting up until I

*get to the bigger number. I put up another finger for each number word I say. Then, my answer will be the number of fingers I have up! Watch me. 5! (Close your fist as if you are grabbing something and holding it tight.) 6 (hold up 1 finger)... 7 (hold up 2 fingers)... 8 (hold up 3 fingers). I have 3 fingers up, so the answer is 3.  $8 - 5$  equals 3!"*

6. Show the student the next flashcard (e.g.,  $14 - 6$ ). Remind the student that with subtraction, it's important to always hold the smaller number in his or her head and count up to the larger number. The answer will be the number of fingers up. Ask the student which is the larger number, 14 or 6. Repeat step 5 with this flashcard.
7. Repeat with three more flashcards from the pile, modeling by thinking aloud to count up for each card.

**Guided Practice:**

1. Shuffle the cards and put the pile face down on the table.
2. Tell the student he or she will have a short amount of time (one minute) to answer as many cards as possible, and that you will put the score on the scorecard. Then, he or she will have another minute to try to beat the score. If he or she does, he or she wins the game and will get to have a prize. (See the list of materials for suggested prizes.)
3. Remind the student that the best way to score points is to know the answer to the math problem as quickly as possible. But, if he or she doesn't know the answer, he or she should count up to find it.
4. Set the timer for one minute, and turn the cards over one at a time for the student to answer. If the student answers correctly, put the card in a "correct" pile. If the student answers incorrectly, have him or her repeat that card immediately, counting up to get the correct answer. Assist the student, as needed. Then, put that card in the "correct" pile.
5. After the timer beeps, count the number of correctly answered cards and mark that score on the scorecard. Then, shuffle the cards and allow the student to repeat for a chance to beat the score. If he or she does, mark that score on the scorecard and reward the student with a prize. If he or she does not, set the timer and provide one more opportunity. Mark on the scorecard the highest score for the day, and attempt to beat that score the next time you play.

**Corrective Feedback:**

Student response 1: The student has difficulty coordinating rote counting (number words) with each finger count.

Teacher feedback: Provide an audible signal (e.g., a finger snap, clap, or small bell) or touch the fingers for the student to signal each transfer between objects.

Student response 2: The student has difficulty identifying the larger addend.

Teacher feedback: Provide a number line for the student to find the two addends and determine which one is larger (i.e., the addend that is farther to the right on the number line). Have the student demonstrate the correct response before moving on.

Student response 3: The student includes the first addend as the first finger counted up.

Teacher feedback: Have the student touch the table with his or her arm while stating the first addend out loud, and then continue counting up on fingers. Have the student demonstrate the correct response before moving on.

For all errors, model the process and have the student demonstrate the correct response before moving on.