

Kindergarten: Real counting (to 10+)

K.N.3	
Relate a numeral, 1 to 10, to its respective quantity.	<ol style="list-style-type: none"> 1. Construct a set of objects corresponding to a given numeral. 2. Name the number for a given set of objects. 3. Hold up the appropriate number of fingers for a given numeral. 4. Match numerals with their given pictorial representations.

K.N.5	
Demonstrate an understanding of counting by: <ul style="list-style-type: none"> • indicating that the last number said identifies “how many” • showing that any set has only one count 	<ol style="list-style-type: none"> 5. Answer the question, “How many are in the set?” using the last number counted in a given set. 6. Show that the count of the number of objects in a given set does not change regardless of the order in which the objects are counted. 7. Count the number of objects in a given set, rearrange the objects, predict the new count, and recount to verify the prediction.

Clarification of the outcome:

- ◆ The outcomes are strongly connected (which is why they are combined in the plan). They concern real counting, not rote counting. Real counting involves matching orally expressed counting words with actual objects (one shoe, two shoes, three shoes, . . .). The last counting word said is the count of the number of objects (e. g. . . . seven shoes).
- ◆ Real counting requires two sub-skills be in place. Sub-skill #1 is rote counting. Rote counting is saying the string of counting words in correct order (one, two, three, . . .). It does not involve matching the counting words with actual objects. Rote counting is sometimes referred to as nursery rhyme counting. Sub-skill #2 is one-to-one matching (one-to-one correspondence). This sub-skill is hard-wired in us. We do it naturally. However, you should pay some attention to one-to-one matching prior to engaging students in the DEVELOP lesson.
- ◆ You may be asking whether it is okay to develop real counting beyond 10. The short answer is "yes" but don't wander too far past 10.

Required close-to-at-hand prior knowledge:

- ❖ Rote counting
- ❖ One-to-one matching.

SET SCENE stage

ENSURE students can rote count at least to ten and have no difficulty with one-to-one matching before proceeding with this plan.

The problem task to present to students:

Read a counting book to children and pay attention to the counting words. Do not focus on real counting, only rote counting (the sequence of counting words spoken in order). Afterwards, do some type of sing-song activity that involves rote counting.

Comments:

- There are many counting books on the market. '*Splash! A Penguin Counting Book*' is an example. The book contains photographs of penguins doing something. Each photograph shows a specific number of penguins in action. For example, for the number 7, the photograph shows seven penguins jumping from ice floes. This book is useful for developing counting skills to ten.
- Counting books show the number of objects (e. g. for 3 there are 3 penguins shown). This allows children an opportunity to have an unstructured preliminary experience that concerns real counting. As you read a counting book, pay attention only to the counting words. Do not focus on what the words are about. Also, when reading a counting book, the numeral for a count (e. g. 3) is often included as well. That is okay as well. This gives children an opportunity to have an unstructured preliminary experience that concerns numerals.
- The following DEVELOP lesson is lengthy. Why? You should spend a lot of time on developing counting because it is a critical initial numeracy understanding and skill. The lesson stops the counting at ten, but you could go beyond ten, as appropriate.

DEVELOP stage

Activity 1: Revisits SET SCENE and addresses achievement indicators 2, 4, and 5.

- ◆ Revisit the SET SCENE activity. In this case, we will revisit the counting book about penguins. Reread the story but this time pay attention to what each counting word is about. For 'one' point to a penguin and say "one" and then point to the numeral for one ('1'). For 'two', point to each penguin in turn as you say "one, two", and then point to the numeral for two ('2'). Continue in this way until about four or five.
- ◆ To this point, there has been little guided discovery. The teaching strategy has been 'show-and-tell, something that is necessary as the way to begin. However, you should shift over to guided discovery as feasible (we suggest at about four or five). When you get to four (for example), do not show anything. Ask children what comes after three (expect: four). Ask them what four tells you about the penguins (expect: a student to come up and say "one", "two", "three", "four", pointing to a penguin as each word is said). Ask them what the numeral for four is (expect a student to point to '4'). Continue in this fashion to ten.

Activity 2: Addresses achievement indicators 2, 4, and 5.

- ◆ Select ten students to come up to the front. Have the rest of the class count how many students are up at the front. When they have finished counting, write the numeral for ten ('10') where students can see it. Select fewer than ten students to come up to the front. Repeat the counting and writing activity. Do this for all the numerals from 1 to 10 times for different counts of students.
- ◆ Show students ten pictures in turn having the count of things from 1 to 10 in order (e.g. show a picture of one toy, a picture of two toys, etc.). Ask students to count the number of things in each picture. You write the count as a numeral each time. Ensure that students understand that the last number word said is the count of 'how many' things in the picture.
- ◆ Provide ten collections of objects, one collection for each count from 1 to 10. Show students the collections in random order (in other words, show a collection of 3 objects, then a collection of 7 objects, etc.). Each time a collection is shown, have students count the number of objects and say the count in words. You write the count as a numeral each time. Ensure that students understand that the last number word said is the count of 'how many' things in the picture.

Activity 3: Addresses achievement indicators 2, 4, and 5, and practice.

- ◆ Organize the students into eight groups (for example). As you make the groups, count the number of students in each group out loud. Set up an equal number of learning centres. At each centre, there are different amounts of objects and large print versions of the numerals for '1' to '10'. Rotate the groups through the various centres. The task is to count how many objects at each centre and to match the numeral with the count of objects (match by placing the appropriate numeral besides the pile of objects).

Activity 4: Addresses achievement indicators 2, 4, and 5, and practice.

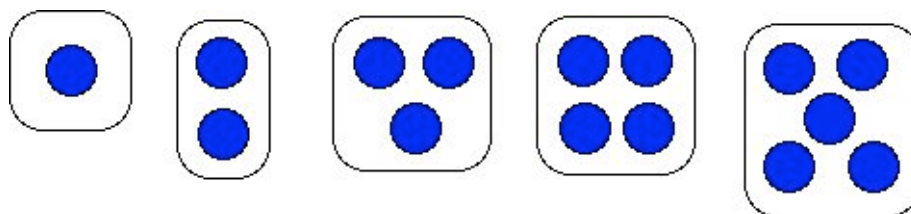
- ◆ Show students different collections of objects (about six collections). Ask students to count the number of things for each collection. Write the count as a numeral each time. Sometimes make an error in the numeral (inform students before you start that you may be making an error once in a while). Ask students to look for errors.

Activity 5: Addresses achievement indicators 1, 2, 4, and 5, and practice.

- ◆ Provide students with objects. Show them a large print numeral. Ask them to make a pile of objects for that numeral. Do this for each of the numerals BUT DO NOT present the numerals in order from '1' to '10'. Scramble the order of presentation.

Activity 6: Addresses achievement indicators 2, 4, and 5, and practice.

- ◆ Show students pictures of dots in scrambled order, one picture for each count from 1 to 10 (refer to diagram below). Provide students with large print numerals. Ask students to match the pictures with the numerals.



Activity 7: Addresses achievement indicators 2, 3, 4, and 5, and practice.

- ◆ Show students a large print numeral in order from 1 to 10. Ask them to show that numeral using their fingers to represent the count. Repeat two more times but this time scramble the order of the numerals.
- ◆ Organize the students into ten groups. Each group is responsible for making one large card to represent one of the counts from 1 to 10 (group #1 makes the card for a count of 1; group #2 makes a card for the count of 2, etc.) and to draw a dot picture showing that numeral. Thus, each finished card shows the number of dots and the numeral for that count (e. g. the '7' card would have seven dots drawn on it and '7' written on it). Display the finished cards somewhere prominent in the room.

Activity 8: Addresses achievement indicators 2, 3, 4, and 5, and practice.

- ◆ Tell students you are going to play a trick on them by making counting errors. Their job is to identify the counting errors. Have appropriate pictures available that show things (e.g. a picture of 9 dogs). Present one of the pictures and count the things on it but make an error in the order of saying the counting words. Repeat this type of error a couple of times, using different pictures.
- ◆ Redo the activity but this time make a counting error for the last counting number said (the count of how many). Repeat this type of error a couple of times, using different pictures.

Activity 9: Addresses achievement indicators 2, 4, 5, and 6.

- ◆ Organize students into groups. Provide each group with seven objects, where each object is of a different colour. Instruct each group to count the objects, starting with a specific coloured object (e.g. Group A begins counting by counting the red object first; Group B begins counting by counting the blue object first; etc.). Ask the groups to share the counts of their objects. The counts should all be 'seven'. Discuss how each group counted the objects in a different order. Ensure that students understand that the count of objects does not depend on the order in which you count them (unless you make a counting error).

Activity 10: Addresses achievement indicators 2, 4, 5, and 7.

- ◆ Show students a collection of nine objects on a table or the floor. Ask some students to count the objects. Ask a student to move the objects around. Ask students to predict how many objects now. Ask another student to count the objects. Repeat a couple of times for different numbers of objects. Discuss if the count should stay the same after a collection of objects is moved around.

Activity 11: Addresses achievement indicators 2, 4, 5, and 7, and practice.

- ◆ Organize students into groups. Provide each group with ten objects stored in a container. Ask each group to shake the container before counting the objects. Have each group count the objects in the container. Ask the groups to share the counts of their objects. The counts should all be 'ten'. Discuss how each group moved the objects around in a different way when shaking the container. Ensure that students understand that rearranging objects does not change the count of how many objects in a collection of objects (unless you make a counting error).
- ◆ Return to the counting book you read for the SET SCENE activity. Select one of the pages. Discuss whether changing: (1) the starting object of the count or (2) rearranging the objects being counted will change how many objects there are. Repeat for another page from the book.

Activity 12: Assessment of teaching.

- ◆ Provide students with a collection of objects between 5 and 10 and large print numerals (1 to 10). Ask students to count the number of objects and to select the numeral for the count. Ask students to rearrange their objects, predict how many, and then count the objects again. Do this individually with each student.

If all is well with the assessment of teaching, engage students in PRACTICE (the conclusion to the lesson plan).

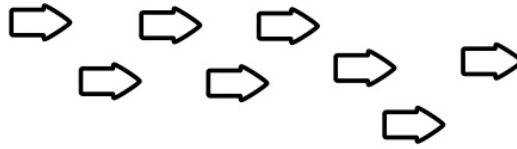
An example of a well-designed worksheet follows.

More questions of each type are needed for a well-designed worksheet.

The MAINTAIN stage follows the sample worksheets.

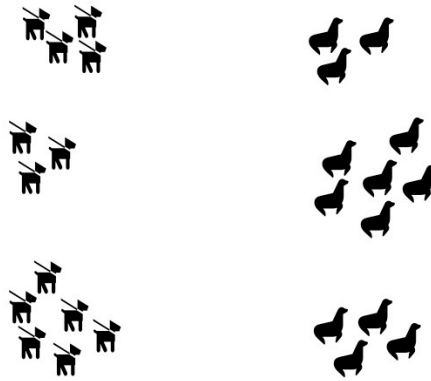
Question 1.

Colour 3 arrows red



Question 2.

Match dogs with seals



Question 3.

Match numeral with seals

1

2

3

4



MAINTAIN stage

Mini-task example

Use daily mini-tasks to maintain real counting to ten. There are many opportunities to do that in an authentic way. For example, when you form groups, have students count how many in each group. For example, at calendar time, count relevant things such as days in a week, students who are wearing red shirts, etc.

Rich-task example

Have students make a repeating chunk pattern (for example, a train) and count the of things in the entire pattern.

Note:

If a count exceeds ten, use that as an opportunity to extend counting skills.