

# New York State Next Generation Mathematics Learning Standards Unpacking Document (DRAFT)

<b>GRADE: PK</b>	<b>DOMAIN: Counting and Cardinality</b>
<p><b>CLUSTER: Know number names and the count sequence.</b></p> <p>Students rote count by starting at one and count to 20. Students become efficient in counting a set of objects, saying the corresponding number names, and representing the set of objects with a written numeral. The number of objects being recorded should not be greater than 5. Students can record the quantity of a set by selecting a number card/tile (numeral recognition) or writing the numeral. Students can also create a set of objects based on the numeral presented. Students should be given multiple opportunities to count objects and recognize that a number represents a specific quantity. Once this is established, students begin to read and write numerals and match the count to a numeral.</p>	
<p><b>Grade Level Standard:</b></p> <p><b>NY-PK.CC.2</b> Represent a number of objects (0-5) with a written numeral (with 0 representing a count of no objects).</p> <p><b>Note: Students can select the corresponding number card and/or write the numeral.</b></p>	

<b>PERFORMANCE/KNOWLEDGE TARGETS</b> (measurable and observable)	
<ul style="list-style-type: none"> <li>• Select and/or write numerals to represent a set of objects from 0 to 5.</li> </ul>	
<b>ASPECTS OF RIGOR</b>	
<div style="display: flex; justify-content: space-around; width: 100%;"> <span>Procedural</span> <span>Conceptual</span> <span>Application</span> </div>	
<b>MATHEMATICAL PRACTICES</b>	<ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively.</li> <li>3. Construct viable arguments and critique the reasoning of others.</li> <li>4. Model with mathematics.</li> <li>5. Use appropriate tools strategically.</li> <li>6. Attend to precision.</li> <li>7. Look for and make use of structure.</li> <li>8. Look for and express regularity in repeated reasoning.</li> </ol>
<b>FOUNDATIONAL UNDERSTANDING</b>	

The following pages contain **EXAMPLES** to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

A sample unit sequence might include:

- Incremental and repeated opportunities to count up to 5 objects in many settings and situations.
- Begin to recognize, identify, and read the written numerals, and match the numerals to given sets of objects.
- Write the numerals to represent a set of counted objects.

Students are actively involved (chants/rhymes, games, and movement) in learning the names, symbols, and quantities that the numbers represent. Students are listening, saying, and identifying numerals in context; matching written numerals with concrete representations to strengthen the relationship between quantity and numerals.

**Example 1: Counting rhymes and songs** (that engage students in singing/finger play both forward and backward such as the following)

- One, two, buckle my shoe.
- 5 Little Ducks
- *Olivia Counts* by Ian Falconer
- *My Granny went to Market* by Stella Blackstone
- *Ten Black Dots* by Donald Crews

The class or individual students can make their own version of Ten Black Dots which would allow for personalizing the association (culturally relevant) of the numeral to the quantity. Students would be creating art that communicates a story about an object (number) and sharing and talking about personal artwork, linking to art standards VA:Cr2.3.PK and VA:Cr3.1.PK.

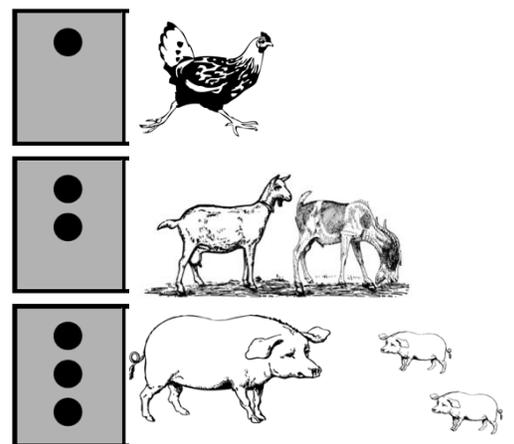
**Example 2: Number matching with dot cards**

The following activity is taken from [EngageNY Prekindergarten Module 1](#), lesson 10, pgs. 66-67.

**Part 1: Concept Introduction**

Materials: (T) Chart paper with 1-, 2-, and 3-dot configurations along the side, 3 farm animal pictures (Template 1), tape

1. Display chart paper with dot configurations. Tell students, "Let's look at some animals you might see on Old MacDonald's farm."
2. Show the picture of a chicken and ask, "How many chickens can you count?" Call a student to touch and count, "1."
3. Ask students where to put the chicken on the chart. Invite a student to tape the chicken next to 1 dot.
4. Guide students to say, "The number 1 tells how many."
5. Repeat the process with the pictures of 2 goats and 3 pigs. Repeat Steps 2–4, guiding students to match the number of animals with the correct number of dots.



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**Part 2: Practice**

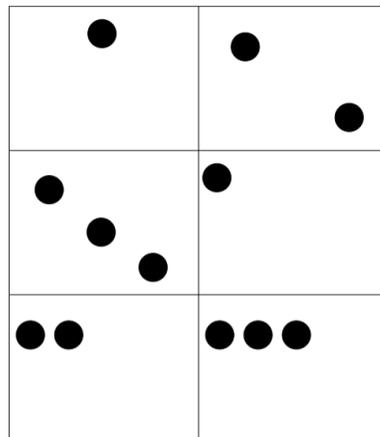
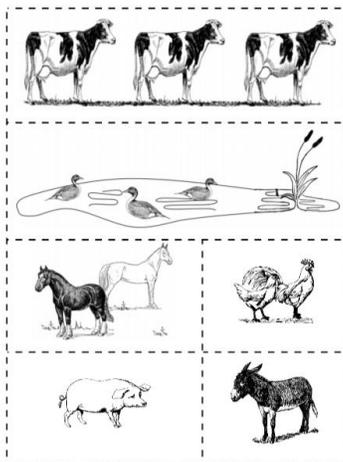
Materials: (S) Per pair: 1 tray with a baggie of 6 farm animal cards (Template 2), 1 baggie of 6 dot cards with 2 each of numerals 1, 2, and 3 (Template 3); Problem Set

1. Pair students and send them to prepared tables to count the animals on Old MacDonald’s farm. Partner A takes the farm animal card baggie. Partner B takes the dot card baggie.
2. Partner A chooses a picture, touching and counting the animals.
3. Guide Partner B to ask, “How many \_\_\_\_\_ (cows, pigs, etc.) can you count?” Partner A responds, “I can count....”
4. Partner B finds the card with the number of dots that matches the count, placing it next to the picture card.
5. Once they have matched all the picture and dot cards, partners switch roles.
6. Distribute a Problem Set to each student. Students draw a line with their fingers from the number of objects in the picture to 1, 2, or 3 dots.

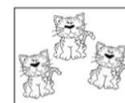
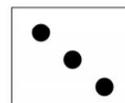
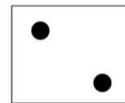
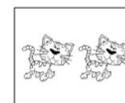
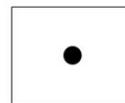


**NOTES ON  
MULTIPLE MEANS  
OF ENGAGEMENT:**

To encourage effort and persistence, provide concrete representations of the animals to pair with the pictures to help students who may have difficulty moving from the concrete to the pictorial representations.



Point to the pictures that match by making a line with your finger. Tell your partner how many dots or cats you count.



**Example 3: Identifying Numbers Games** such as [Finding the Numbers 0- 5](#) from Illustrative Mathematics (Content licensed under [CC BY-NC-SA 4.0](#))

The teacher will need to create 2-3 sets of six number cards (0, 1, 2, 3, 4, 5) and a matching numer die (0, 1, 2, 3, 4, 5) for each set of students. Materials can be made from index cards and blank wooden cubes.

Students can play in pairs or trios. Each student places a set of the number cards 0-5 face up, in sequence, in front of him or herself. The students will take turns rolling the 0-5 die. After rolling he or she needs to find the matching number in the row of cards, say the number name out loud to the other student(s) and turn it face down. If a student rolls a number that they have already turned over they lose that turn. Students continue to roll until one student has no cards left face up. The student with all cards turned over first wins the game. Students may use a number line to help set up the cards in sequence.

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**Example 4: Multiple Representations**

- How many letters are in your name or word of the week? Students can make a poster that could include representations such as what is seen below.

How Many Letters in my Word ?

M	A	T	H			
---	---	---	---	--	--	--

Write the Number

4
---

Draw the Tally Marks

--

Fill in the Ten Frame

●	●	●	●		

Students can utilize manipulatives such as Scrabble pieces, craft sticks, counters, Unifix blocks, etc. to help transition from the concrete to the pictorial.

- Concept Development from [EngageNY Prekindergarten Module 1](#), Lesson 13

Part 1: Concept Introduction

Materials: (T) 5 cotton puffballs, 5 craft sticks, die with dots 1–3 (place tape over some of the dots on the 4, 5, and 6 faces if needed), numeral cards (Lesson 12 Template 2) or foam numerals

- Display the numerals 1, 2, and 3.
- Roll the die and ask students, “How many dots do you see?”
- Example after students respond:
  - Touch and chorally count each dot, “1, 2, 3.”
  - Have students point to the matching numeral.
  - Lay down 3 puffballs as students count.
  - Ask students, “How many puffballs are in this group?” Lead them to respond, “There are 3 puffballs.”
  - Count out 3 sticks to match the 3 puffballs.
- Repeat Steps 2–3.
- Guide students to see that what is the same about the dots, the group of puffballs, and the group of sticks is the number 3 tells how many objects are in each group.



Notes on Multiple Means for Action and Expression:

Some students may struggle to create a group of 3. Invite them to place their puffballs directly on top of the dots on the die as they count, placing one puffball on each dot.

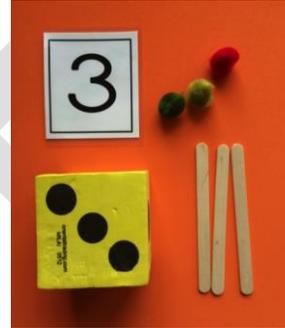
Challenge students who are ready by adding in numerals. Put numerals and dot configurations on their die, or provide foam numerals for them to match to their quantities.

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Part 2: Practice

Materials: (S) Per pair: tray with 5 cotton puffballs, 5 craft sticks, die with dots 1–3, foam numbers 1–3 or numeral cards (Lesson 12 Template 2)

1. Pair students and send them to tables with a tray.
2. Instruct students to take turns rolling the die, counting how many, and making groups with the same number of puffballs and sticks.
3. Instruct students to point to the matching numeral.
4. Encourage students to ask and answer how many questions. Circulate and use parallel talk: "I hear Aleem asking, 'How many sticks are in your group?'"
5. Check that the number in each group matches the dot configuration and numeral and that students are moving their puffballs and sticks into new groups as they count.



MP.6

- Provide students with a numeral and have them trace it (use multiple media such as sand), color/shade the quantity it represents in a ten-frame, build the quantity it represents using Unifix blocks, locate numeral throughout the classroom, or have students hop to the numeral on a classroom number line/path.