UNIT 1 PLANNING OPTION

KINDERGARTEN

USING NUMBERS TO REPRESENT QUANTITIES; IDENTIFYING AND DESCRIBING SHAPES

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Identify Essential Questions

After reviewing original essential questions, we changed some and added one to the unit:

- How does counting help me solve problems?
- How can I show my thinking when solving story problems?
- What shapes do I see in the world around me?
- How can I sort these objects?

Clarify Standards

- Read overview of year to see progression of standards throughout the year
- Vertical alignment: progression from grade level below/progression to grade level above
- Content Emphasis- focus on major clusters, supporting clusters, and additional clusters (green, blue, yellow)
- Look for "Big Ideas" and Coherency within standards

We read over each standard and then went to the progression documents for clarification.
We looked at the coherency between standards.
We identified the similarities and differences between them.
We identified the foundational standards that would carry through the rest of the year.
We unpacked and analyzed each standard and thought about ways we addressed the standards in our classrooms.

Counting and Cardinality	
Know number names and the count sequence.	
K.CC.1	Count to 100 by ones and by tens.
	Minimum Quarterly Expectations: Rote count by 1's to 20
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
	Minimum Quarterly Expectations: Write numbers 0-5
Count to tell the number of objects	
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 object 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 1–20, count out that many objects.
	Minimum Quarterly Expectations: Count to answer "how many" questions about as many as 5 objects...

Pre-K comes in working with numbers to 10. Even though we have **minimum** quarterly expectations, we ***don't*** have to stay there.

Cardinality means one-to-one correspondence. All of these standards have an idea of all their own.

Subitizing is the ability to recognize a quantity without counting.

K.CC.4 is when ***you give them objects*** and they count.
K.CC.5 is when ***you give the students a number*** and then they count out those objects.

Operations and Algebraic Thinking	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings (details not needed), sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
	Minimum Quarterly Expectations: Decompose numbers up to 5 into pairs in more than one way…
K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
	K.OA.4 is not formally reported until 2nd quarter - conceptual experiences must be provided.
K.OA.5	Fluently add and subtract within 5.
	Fluency is not formally reported until 3rd quarter - conceptual experiences must be provided throughout the year.

K.OA.1 is understanding the concept behind addition and subtraction. When you add it gets bigger, when you subtract it gets smaller.

K.OA.2 is the application of K.OA.1 combined with K.CC standards.

K.OA.3 means decomposing numbers **UP** to 10, **NOT JUST 10** (aka combinations).
K.OA.4 is the inverse of K.OA.3, now students will find the missing addend (aka separations).
Just like K.OA.3, you don't have to start with 10. Whatever number you are working with for K.OA.3, you can do with K.OA.4. You can do these simultaneously.

K.OA.3 and **K.OA.4** should work through a progression (like a ramp). Work with smaller numbers and build up to 5. (For example: Start with 3). Use of concrete objects might easier then beginning with double-sided counters.

K.CC.5 fluency will happen when students have ***multiple experiences*** with K.OA.3 and K.OA.4.

K.G.1 can be embedded throughout the day. We will purposefully use the terms when we talk with students. (Note: The words above and beside do not translate in Spanish).

Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to.*
K.G.2	Correctly name shapes regardless of their orientations or overall size.
K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three three-dimensional ("solid").
Measurement and Data	
Classify objects and count the number of objects in each category.	
K.MD.3	Classify objects into given categories; count the numbers of objects (less than or equal to 10) in each category and sort the categories by count.

K.G.2 and **K.G.3** are foundational to later geometry standards in 4th quarter. However, these two particular standards will **not** appear again.
We suggest teaching these standards early in the quarter and assess mid-quarter to determine if re-teaching is necessary.

K.MD.3 is foundational to categorical data in future grades. Students also had experiences with sorting in Pre-K. ***This is a nice standard to combine with the geometry standards.***

Divide the Unit & Distribute Standards

(Answer Essential Questions)

Week	Standards	Structure/ Resource Type	Counting Collections
1	K.CC.1 K.CC.4 K.CC.5 K.OA.1	• Have kids report or count how many things at home • Oral story problems (turn to partner: count eyes, noses, fingers, ears, etc.)	X
2	K.MD.3 K.MD.3/K.G.2 K.OA.2/K.OA.1 K.CC.5	• Go home graph • Sort shapes • Oral story problems (no paper, manipulatives and white board available) • Dot images/ten frames	K.CC.1 K.CC.4
3	K.MD.3/K.G.2 K.OA.2/K.OA.1 K.CC.5 K.OA.3/K.OA.4 (K.OA.5)	• Sort shapes • Oral story problems (no paper, manipulatives and white boards available) • Dot images/ten frames • Combinations/separations* (using concrete objects)	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4
4	K.MD.3/K.G.3 K.OA.2/K.OA.1 K.OA.3/K.OA.4 (K.OA.5) K.CC.5	• Sort shapes-emphasis on flat vs. non flat • CGI problem types • Combinations/separations* • Dot images/ten frames	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4
5	K.CC.2 K.OA.2/K.OA.1 K.OA.3/K.OA.4 (K.OA.5) K.CC.5	• Counting on from a number using a number line • CGI problem types • Combinations/separations* • Dot images/ten frames	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4

***Give geometry assessment on K.G.3**
(decide if you need to include these standards in later weeks based on assessment data)

6	K.CC.2 K.OA.2/K.OA.1 K.OA.3/K.OA.4 (K.OA.5) K.CC.5	• Counting on from a number using a number line • CGI problem types • Combinations/separations* • Dot images/ten frames	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4 *Use recording form for summative assessment.
7	K.CC.2 K.OA.2/K.OA.1 K.OA.3/K.OA.4 (K.OA.5) K.CC.5	• Counting on from a number using a number line • CGI problem types • Combinations/separations* • Dot images/ten frames	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4
8	K.CC.2 K.OA.2/K.OA.1 K.OA.3/K.OA.4 (K.OA.5) K.CC.5	• Counting on from a number using a number line • CGI problem types • Combinations/separations* • Dot images/ten frames	K.CC.1 K.CC.3 (Suggested recording based on student needs- post-it notes, recording form, etc.) K.CC.4
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1st Quarter CGI Problem Types: JRU, SRU, PPW-WU

K.G.1: This standard will be incorporated throughout the day using the terms above, below, beside, in front of, behind, and next to. (Note: In the Spanish language they do not have a word for above and beside, so your ELL students may struggle).

*Combinations/Separations: Progress through combinations of 3, 4, and 5 using your formative assessment to guide your instruction. **End of 1st quarter goal is combinations of 5.**

- Use concrete objects, for example: I can fit 4 apples in my basket. The apples can be red or green. How many different ways can I put red and green apples in my basket? (Use die cuts of apples and allow kids show many different combinations to address K.OA.3. For K.OA.4 (separations) you need to also progress up to 10. Begin with three and move up to 5. For example: I had 4 apples in my basket. Some apples fell out. How many apples fell out? (You would show them 3 apples and hide some behind your back and see if they know that you hid one behind your back).
- After students have had experiences with combinations/separations with concrete objects you can move to part-part-whole: both parts unknown problem type. For example: I have 4 apples in my basket. Some are red and some are green. Using your crayons, show me all the ways you can make 4 apples.

Gather and Study Resources

We looked at the following to create the document that distributes the standards:

- Books:
  - Hands on Standards
  - Number Talks
  - It Makes Sense!
  - Good Questions for Math Teaching
  - Contexts for Learning
- Websites:
  - Rogers Public Schools
  - Howard County Schools
  - Engage NY
- Problem Type Chart

Make or Locate Summative Assessments

Summative assessments were created for:

K.G.3 – students are determining which shapes are flat (2-D vs. 3-D)

K.OA.1 & K.OA.2 – students are solving addition and subtraction word problems

Along with suggested assessments, other places to look for ideas to create your own assessments based on essential questions:

- Howard County Website
- Engage NY Website

Plan for Formative Assessment & Feedback

- Starts with a goal.
- Plan for feedback.

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- Howard County Website
- Engage NY Website

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Plan for Daily Lessons

Use your online district resources as you plan.

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Using Numbers to Represent Quantities; Identifying and Describing Shapes

Students begin to use numbers (including written numerals) to represent quantities. They begin to count objects in a set and pair each object with one number name. They begin to explore the concept that the number of objects is the same regardless of their arrangement or the order in which they are counted. They also begin to model simple joining and separating situations using objects, fingers, mental images, drawings, sounds, acting out situations and verbal explanations. Students also learn to identify and describe 2-dimensional and 3-dimensional shapes.

Essential Questions:

How does counting help me solve problems?

How can I show my thinking when solving story problems?

What shapes do I see in the world around me?

How can I sort objects?

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Continued on next page…

1st Quarter (p. 2 of 2)

Using Numbers to Represent Quantities; Identifying and Describing Shapes

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K.OA.5	Fluently add and subtract within 5.
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Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
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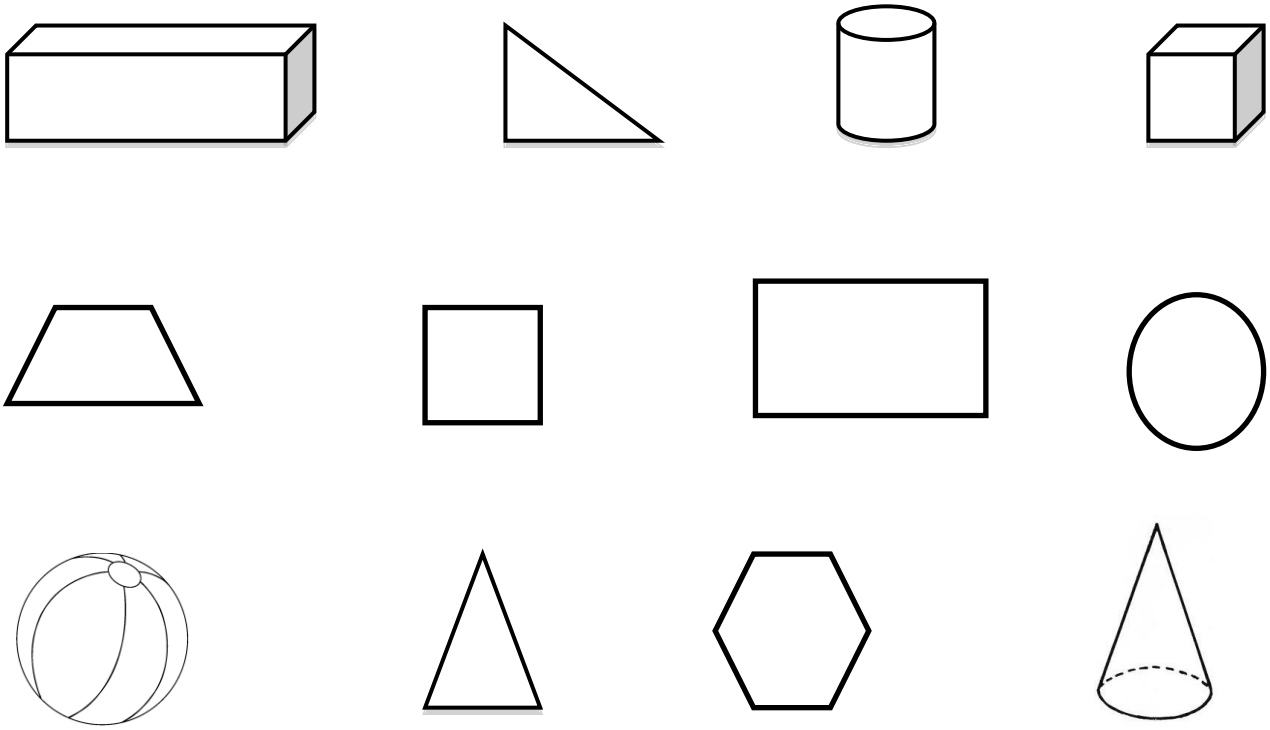
Kindergarten students should see addition and subtraction equations, and student writing of equations in Kindergarten is encouraged, but it is not required. (CCSSM, p.9 - Kindergarten Overview)

Assessment: K.G.3 Name: _____

1. Color the flat shapes red.



Assessment: K.OA.2 – K.OA.1

For this assessment, numbers were chosen within 10 to score to the standard. During this first quarter please feel free to use numbers higher than 10 based on your formative assessment data.

*This standard states "addition and subtraction word problems" and in the appendix it is hoped that Kindergarteners would be able to solve a variety of addition/subtraction problem types with the unknown in **all positions**. However, for the beginning of the year, we realize you may begin with only these three problem types. Please feel free to include other problem types based on the needs of your students.

JRU (Join Result Unknown) CCSS – Add to Result Unknown

_____ has ____ cookies. ____ gives her ____ more cookies. How many cookies does _____ have now?

(2, 2) (2, 5) (5, 5)

SRU (Separate Result Unknown) CCSS - Take From Result Unknown

____ has _____ crackers. She eats _____ crackers. How many crackers does ____ have left?

(3, 1) (5, 2) (6, 3)

(Pre-assessment for 2nd quarter)

PPW-WU (Part Part Whole – Whole Unknown) CCSS – Put together Total Unknown

There are 4 boys and 6 girls playing on the playground. How many kids are playing in all?

Name _____

Counting Collections

Bag

Draw your collection

Total in bag

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Name _____

Counting Collections

Bag

Draw your collection

Total in bag

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Counting Collections

My name:_____

Collection Number: 1 2 3 4 5 6 7 8 9 10

Total:_____

My collection looks like this:

Counting Collections

Name: _____

Collection# 1 2 3 4 5 6 7 8 9 10

Total:

My collection looks like this:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Counting Collections

Name: _____

Collection# 1 2 3 4 5 6 7 8 9 10

Total:

My collection looks like this:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100