Counting and Cardinality

Approximate Duration of Study: Entire year **When to Study:** Entire Year

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/Literature Connections
Know Number Names and the Count Sequence.					
K.CC.1	How can a specific quantity be determined?	Count to 100 by ones.	The child counts verbally using rote memory without real objects.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment. AIMSweb Assessment	*Saxon Math* lesson M1; 7-9, 13, 41, 61, 64-65, 91, 125; meetings 4A; 13, 64, 65, 67, 68 Education City Activities *Baker's Shop* *Bottle Alley* *Buckle My Shoe* *Caught a Fish* *Cheeky Chicks* *Deep Discoveries* *Five Currant Buns* *Frog Hunt* *Sausage Search* *Sizzling Sausages* *IXL Activities* Numbers and counting up to 3 Count by typing - up to 3 Numbers and counting up to 5 Count by typing - up to 5 Numbers and counting up to 10 Count by typing - up to 10 Numbers and counting up to 20 Count by typing - up to 20 Count tens and ones - up to 20 Count to 30 Count to 100 Count groups of ten Skip-count by tens Literature Connection *Count!* by Denise Fleming *Eye Count* by Linda Bourke

	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Know Number Names and the Count Sequence.					
K.CC.1	How can a specific quantity be determined?	Count to 100 by ones.	The child counts verbally using rote memory without real objects.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment. AIMSweb Assessment	*Math for All Seasons* by Greg Tang *Math in the Bath* by Sara Atherlay *Monster Math* by Anne Miranda *One of Each* by Mary Ann Hoberman *One Wide River to Cross* by Barbara Emberley *Ten Little Rabbits* by Virginia Grossman and Sylvia Long *The Cheerios Counting Book* by Barbara Barbieri McGrath
K.CC.1	How can a specific large quantity be determined?	Count to 100 by ones.	Manipulative counting to 100 by ones with one to one correspondence.	The child verbally counts a group of objects correctly while physically or mentally touching each object once, and only once. Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Saxon Math* lesson meetings 1; 7, 41, 61 M4A; 13, 64, 65, 67, 68 *Shapes to Count.* Smart notebook Literature Connection *Math in the Bath* by Sara Atherlay *One of Each* by Mary Ann Hoberman
K.CC.1	How can a specific large quantity be determined quickly?	Count to 100 by tens.	Oral rote counting to 100 by tens.	The child counts verbally using rote memory without real objects. Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Saxon Math* lesson 64, 65, 67, 68; M11; M4A; 13, M3 Literature Connection *Chicka Chicka 1, 2, 3* by Bill Martin Jr. *Math in the Bath* by Sara Atherlay *Monster Math* by Anne Miranda
K.CC.1	How can a specific large quantity be determined quickly?	Count to 100 by tens.	Manipulative counting to 100 by tens with one to one correspondence.	The child verbally counts a group of objects correctly while physically or mentally touching each object once, and only once.	*Saxon Math* lesson 64, M4A; 13, 64, 65, 67, 68 65, 67, 68; M11 Literature Connection *Chicka Chicka 1 2 3* by Bill Martin Jr. *Math in the Bath* by Sara Atherlay

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Know Number Names and the Count Sequence.					
K.CC.1	How can a specific large quantity be determined quickly?	Count to 100 by tens.	Manipulative counting to 100 by tens with one to one correspondence.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment	
K.CC.2	How can I count things more quickly if I have a given number to start? (Counting on)	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	Starting at x (given number) continue counting to find total number of items.	Teacher Observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	Literature Connection *Math in the Bath* by Sara Atherlay Education City Activities *Mrs. Cow's Milk* Numbers and counting up to 5: Count up (Kindergarten - B.4)
K.CC.3	How can I make notations, my own calendars, number lines, etc. to use?	Write numerals from 0 to 20.	Manipulating a writing tool legibly. Recognizing that specific symbols represent each number.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Math Their Way*, chapter 6 *Saxon Math* handwriting practice alternates 5, 12, 31, 32, 33, 34, 38, 44, 59, 61, 64, 65, 68, 71, 72, 73, 83, 74, 111, 120-1, 130-1
K.CC.3	How can I communicate a quantity quickly or to last over time?	Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Represent numbers up to 3 Represent numbers up to 5 Represent numbers up to 10 Represent numbers up to 20
K.CC.4	Why is the vocabulary of numbers important? How can I communicate a quantity clearly?	Understand the relationship between numbers and quantities; connect counting to cardinality.	Count elements with one-to-one matching.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	Literature Connection *Math in the Bath* by Sara Atherlay

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Count to Tell the Number of Objects.					
K.CC.4a	How can accuracy and consistency in counting be assured?	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.	Count elements with one-to-one matching. Conservation of number	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Saxon Math* 21, 35, 74 Literature Connection *Math in the Bath* by Sara Atherlay Count to 3 Count by typing up to 3 Count to 5 Count by typing up to 5 Count to 10 Count by typing up to 10 Names of numbers up to 10 Count to 20 Count by typing up to 20 Names of numbers up to 20 Numbers - up to 20
K.CC.4b	How can accuracy and consistency in counting be assured? How can conservation of number be established?	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.	Count elements with one-to-one matching. Conservation of number	Teacher observation Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment	Numbers and counting up to 3: Count to 3 (Kindergarten - A.1) Numbers and counting up to 5: Count to 5 (Kindergarten - B.1) Numbers and counting up to 10: Count to 10 (Kindergarten - C.1) Numbers and counting up to 20: Count
K.CC.4c	How can accuracy and consistency in counting be assured? How can conservation of number be established?	Understand that each successive number name refers to a quantity that is one larger.	Conservation of number.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	*Math in the Bath* by Sara Atherlay Count up to 5 Numbers and counting up to

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Count to Tell the Number of Objects.					
K.CC.5	How can I share a given number of items?	Given a number from 1–20, count out that many objects.		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Count to 3 Count by typing up to 3 Count to 5 Count by typing up to 5 Count to 10 Count by typing up to 10 Count by typing - up to 20
K.CC.6	How can I decide which group is preferable when I want more? What vocabulary terms will I need to know?	Identify whether the number of objects in one group is greater than the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)	Establish meaning for more than, less than, equal, etc. and synonyms for these terms.	Teacher observation Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Saxon Math* lesson 21, 24, 35, 42, 62, 73, 74, 117, 118 Comparing: Fewer, equal, and more Fewer and more - comparing groups Fewer and more - with charts Fewer and more - mixed
	How can I decide which group is better when I want fewer? What vocabulary terms will I need to know?	Identify whether the number of objects in one group is less than the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)		Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Compare Numbers					
	How can I decide when several groups are the same when I want all to be equal? What vocabulary terms will I need to know?	Identify whether the number of objects in one group is equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	
K.CC.7	How can numerals be used to simplify comparisons of quantities?	Compare two numbers between 1 and 10 presented as written numerals.	Develop numeral reading skill	Teacher observation Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment AIMSweb Assessment	*Saxon Math* 71, 99, 102 Comparing numbers up to 10
Vocabulary: count, set, number numeral, one, two, three, four, five, six, seven, eight, nine, ten, etc. more than, less than, equal to,					

Operations and Algebraic Thinking

Approximate Duration of Study: Two weeks **When to Study:** Entire Year

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Understand Addition as Putting Together and Adding to, and Understand Subtraction as Taking Apart and Taking From.					
K.OA.1	How can the abstraction of changing numbers be experienced by children at the concrete or semi-abstract stage of development?	Represent addition with objects, fingers, mental images, drawings, (need not show details, but should show the mathematics in the problem) sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Addition with pictures - sums to 5 Add two numbers - sums up to 5 Addition sentences sums to 5 Addition with pictures sums to 10 Add two numbers sums to 10 Addition sentences sums to 10 Education City Activities Literature Connection *Candy Counting* by Lisa McCourt *The Hershey's Kisses Subtraction Book* by Jerry Pallotta
K.OA.1	How can the abstraction of changing numbers be experienced by children at the concrete or semi-abstract stage of development?	Represent subtraction with objects, fingers, mental images, drawings, (need not show details, but should show the mathematics in the problem) sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Subtract with pictures - numbers up to 5 Subtraction - numbers up to 5 Subtraction sentences - numbers up to 5 Subtract with pictures - numbers up to 10 Subtraction - numbers up to 9 Subtraction sentences - numbers up to 10 Education City Activities *Five Little Frogs* *Five in a Bed*
K.OA.2	How can the abstraction of changing numbers be experienced by	Solve addition word problems, and add within 10, e.g., by using objects or drawings to represent the	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by	Teacher observation Kindergarten Inventory of Skills.	Addition with pictures - sums up to 5

	children at the concrete or semi-	problem.	using objects or drawings to represent the problem.		
CCS	**Essential Question**	**Concept (Very similar to skills at this level)**	**Skills (Very similar to concepts at this level)**	**Assessments**	**Helpful Strategies and Resources/ Literature Connections**
Understand Addition as Putting Together and Adding to, and Understand Subtraction as Taking Apart and Taking From.					
	abstract stage of development?			Kindergarten Common Core Math Assessment.	Addition sentences - sums up to 5 Addition with pictures - sums up to 10 Addition sentences - sums up to 10 *Candy Counting* by Lisa McCourt *The Hershey's Kisses Subtraction Book* by Jerry Pallotta
K.OA.2	How can the abstraction of changing numbers be experienced by children at the concrete or semi-abstract stage of development?	Solve subtraction word problems, and subtract within 10, e.g., by using objects or drawings to represent the problem.		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Subtract with pictures - numbers up to 5 Subtraction sentences - numbers up to 5 Subtract with pictures - numbers up to 10 Subtraction sentences - numbers up to 10
K.OA.3	How can the abstraction of changing numbers be experienced by children at the concrete or semi-abstract stage of development?	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).	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).	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Candy Counting* by Lisa McCourt *Missing Mittens* by Stuart J. Murphy Education City activity Sizzling Sausages Ways to make a number using addition
K.OA.4	How can the utility of the base ten system be maximized?	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	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	Teacher observation Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*Candy Counting* by Lisa McCourt

		drawing or equation.	with a drawing or equation.		
K.OA.5	How can the utility of necessary daily addition situations be optimized?	Fluently add within 5.	Fluently add and subtract within 5.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	*The Hershey's Kisses Subtraction Book* by Jerry Pallotta *Saxon Math* 117 Addition with pictures - sums up to 5 Add two numbers - sums up to 5 Addition sentences - sums up to 5 Subtract with pictures - numbers up to 5 Subtraction - numbers up to 5 Subtraction sentences - numbers up to 5
K.OA.5	How can the utility of necessary daily subtraction situations be optimized?	Fluently subtract within 5.		Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	
Vocabulary: add, subtract, all together, are left,					

Number and Operations Base Ten

Approximate Duration of Study: August through May **When to Study:** Entire Year

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Work with Numbers 11–19 to Gain Foundations for Place Value.					
K.NBT.1	How can quantities beyond nine be represented without creating a new symbol for each? How can objects be organized to avoid counting anew each time they are needed?	Compose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8);	Rote counting to nineteen. Manipulative counting to nineteen. Reading double digit numerals through nineteen. Writing double digit numerals through nineteen.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Physically practice using a variety of items, objects, etc. Another person to act as listener is important. Celebrate "Bundling Day." Celebrating 100th Day. *Math Their Way*, chapter 10 *The Hershey's Kisses Subtraction Book* by Jerry Pallotta *One Tiger Growls* by Ginger Wadsworth Count tens and ones - up to 20
K.NBT.1	How can objects be organized to avoid counting anew each time they are needed?	Understand that numbers 11 through 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.		Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	
K.NBT.1	How can quantities from 11 to 19 be broken down quickly?	Decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 +		Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	

		8);			
Vocabulary: one, two, three, four, five, six, seven, eight, nine, ten, bundle, loose, decade, ___teen					

Measurement and Data

Approximate Duration of Study: Two weeks **When to Study:** Entire Year

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Describe and Compare Measurable Attributes.					
K.MD.1	Is there any means by which fairness can be assured?	Describe measurable attributes of objects, such as length or weight.	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	*Math in the Bath* by Sara Atherlay *Math Their Way*, chapter 7 *Hershey's Milk Chocolate Weights and Measures* by Jerry Pallotta
K.MD.1	How can I specify and show I clearly understand an object?	Describe several measurable attributes of a single object.		Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	
K.MD.2	How can I express the relationship between two objects?	Directly compare two objects with a measurable attribute in common, to see which object has "more of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	*Math in the Bath* by Sara Atherlay *Saxon Math* 11, 17, 22
K.MD.2	How can I express the relationship between two objects?	Directly compare two objects with a measurable attribute in common, to see which object has "less of" the		Kindergarten Inventory of Skills Kindergarten	

		attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*		Common Core Math Assessment	
CCS	**Essential Question**	**Concept (Very similar to skills at this level)**	**Skills (Very similar to concepts at this level)**	**Assessments**	**Helpful Strategies and Resources/ Literature Connections**
Classify Objects and Count the Number of Objects in Each Category.					
K.MD.3	What words can be used to communicate how we plan our lives daily?	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	*Math Their Way*, chapter 8
Vocabulary: longer, shorter, taller, more, less, equal, same, lighter, heavier, ruler, yardstick, inch, clock, minute, hour, before, after, soon,					

Geometry

Approximate Duration of Study: August through May **When to Study:** Entire Year

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/Literature Connections
Identify and Describe Shapes (Squares, Circles, Triangles, Rectangles, Hexagons, Cubes, Cones, Cylinders, and Spheres).					
K.G.1	How can an object be discussed so there is common understanding by all participants?	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*.	Describe objects in the environment using names of shapes, and describe the relative positions of these objects	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment	Literature Connection *Shapes and Patterns* by Jerry Pallotta
K.G.2	How can conservation of shape be assured?	Correctly name shapes regardless of their orientations or overall size.	Correctly name shapes regardless of their orientations or overall size.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Literature Connection *Shapes and Patterns* by Jerry Pallotta
K.G.3	How can conservation of shape be assured?	Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid").	Identify shapes as two-dimensional.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Literature Connection *Shapes and Patterns* by Jerry Pallotta
K.G.4	How can an object be discussed so there is common understanding by all participants?	Analyze and compare two- and three- dimensional shapes, in different sizes and orientations, using informal language to describe their similarities (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes.	Teacher observation. Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment.	Literature Connection *Math in the Bath* by Sara Atherlay *Shapes and Patterns* by Jerry Pallotta

CCS	Essential Question	Concept (Very similar to skills at this level)	Skills (Very similar to concepts at this level)	Assessments	Helpful Strategies and Resources/ Literature Connections
Analyze, Compare, Create, and Compose Shapes.					
K.G.4	How can an object be discussed so there is common understanding by all participants?	Analyze and compare two- and three- dimensional shapes, in different sizes and orientations, using informal language to describe their differences (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).		Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	
K.G.4	How can an object be discussed so there is common understanding by all participants?	Analyze and compare two- and three- dimensional shapes, in different sizes and orientations, using informal language to describe their parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).		Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	
K.G.5	How can an object be discussed so there is common understanding by all participants?	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	Model shapes in the world by building shapes from components and drawing shapes.	Teacher observation Kindergarten Inventory of Skills Kindergarten Common Core Math Assessment	Literature Connection *Shapes and Patterns* by Jerry Pallotta
	How can simple shapes be used to represent more complex structures in our daily world?	Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*	Compose simple shapes to form larger shapes.	Teacher observation Kindergarten Inventory of Skills. Kindergarten Common Core Math Assessment	Literature Connection *Shapes and Patterns* by Jerry Pallotta
Vocabulary: shape, circle, square, rectangle, triangle, oval, cone, cylinder, sphere, trapezoid,					

Misc to include:

Instant numeral recognition Instant set recognition to 6 Conservation on number Ordinal numerals

Money Where do we see numerals in the real world? What do numerals represent?

Panda Math: Learning About Subtraction from Hua Mei and Mei Sheng by Ann Whitehead Nagda

A Grain of Rice by Helena Clare Pittman

Tiger Math: Learning to Graph from a Baby Tiger by Ann Whitehead Nagda

Alexander, Who Used to be Rich Last.

Math Curse by Jon Scieszka

Clocks and More Clocks by Pat Hutchins

The Grapes of Math by Greg Tang

Mission Addition by Loreen Leedy

How Much is a Million? by David M. Schwartz and Steven Kellogg

Ninety-Three in My Family by Erica S. Perl