<table>
<tr><td>Grade: Kindergarten

Unit 5-Fluency with Addition and Subtraction within 5</td><td colspan="2">Subject: Math
Time Frame: 4-5 weeks
Domains: Counting and Cardinality, Operations and Algebraic Thinking</td></tr>
<tr><td>Standards</td><td>Content Standards:
K.OA.1, K.AO.2, K.OA.3, K.OA.4, K.OA.5
http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf</td><td>Practice Standards:
MP 1, 2, 3, 4, 5, 6, 7, 8</td></tr>
<tr><td>Enduring Understandings</td><td colspan="2">1. We can represent addition and subtraction with objects, fingers, drawings, sounds, acting out situations, verbal explanations, expressions or equations.
2. We can solve addition and subtraction word problems by using objects or drawings to represent the problem.
3. We can decompose numbers less than or equal to ten in more than one way (eg. By using objects, drawings or equations).
4. We can fluently add and subtract within 5.</td></tr>
<tr><td>Essential Questions</td><td colspan="2">1. How can we represent addition and subtraction with objects, fingers, drawings, sounds, acting out situations, verbal explanations, expressions or equations?
2. How can we solve addition and subtraction word problems by using objects or drawings to represent the problem?
3. How can we decompose numbers less than or equal to ten in more than one way (eg. By using objects, drawings or equations)?
4. How can we fluently add and subtract within 5?</td></tr>
<tr><td>Vocabulary</td><td colspan="2">add, subtract, word problem, total, act out, decompose, compose, equation, equal, plus, minus, take away, put together, add to, number sentence, join, combine, separate, number pairs
See Common Core Georgia Performance Standards Mathematics Glossary
https://www.georgiastandards.org/Common-Core/Documents/CCGPS_Mathematics_Glossary.pdf</td></tr>
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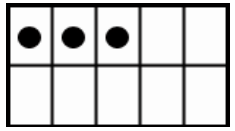
Priority and Supporting CCSS	Explanations and Examples*
K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings*, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. * Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)	**K.OA.1.** Using addition and subtraction in a word problem context allows students to develop their understanding of what it means to add and subtract. Students should use objects, fingers, mental images, drawings, sounds, acting out situations and verbal explanations in order to develop the concepts of addition and subtraction. Then, they should be introduced to writing expressions and equations using appropriate terminology and symbols which include "+," "–," and "=". • Addition terminology: add, join, put together, plus, combine, total • Subtraction terminology: minus, take away, separate, difference, compare Students may use document cameras or interactive whiteboards to represent the concept of addition or subtraction. This gives them the opportunity to communicate their thinking.
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.2** Using a word problem context allows students to develop their understanding about what it means to add and subtract. Addition is putting together and adding to. Subtraction is taking apart and taking from. Kindergarteners develop the concept of addition/subtraction by modeling the actions in word problem using objects, fingers, mental images, drawings, sounds, acting out situations, and/or verbal explanations. Students may use different representations based on their experiences, preferences, etc. They may connect their conceptual representations of the situation using symbols, expressions, and/or equations. Students should experience the following addition and subtraction problem types see Table 1 (Appendix A). • Add To word problems, such as: "Mia had 3 apples. Her friend gave her 2 more. How many does she have now?" o A student's "think aloud" of this problem might be, "I know that Mia has some apples and she's getting some more. So she's going to end up with more apples than she started with." • Take From problems such as:

*Source – Connecticut Core Standards for Mathematics as adapted from the Arizona Academic Content Standards

	o José had 8 markers and he gave 2 away. How many does he have now? When modeled, a student would begin with 8 objects and remove two to get the result. • Put Together/Take Apart problems with Total Unknown gives students opportunities to work with addition in another context such as: o There are 2 red apples on the counter and 3 green apples on the counter. How many apples are on the counter? • Solving Put Together/Take Apart problems with Both Addends Unknown provides students with experiences with finding all the decompositions of a number and investigating the patterns involved. o There are 10 apples on the counter. Some are red and some are green. How many apples could be green? How many apples could be red? Students may use a document camera or interactive whiteboard to demonstrate addition or subtraction strategies. This gives them the opportunity to communicate and justify their thinking.
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).	**K.OA.3.** This standard focuses on number pairs which add to a specified total, 1-10. These number pairs may be examined either in or out of context. Students may use objects such as cubes, two-color counters, square tiles, etc. to show different number pairs for a given number. For example, for the number 5, students may split a set of 5 objects into 1 and 4, 2 and 3, etc. Students may also use drawings to show different number pairs for a given number. For example, students may draw 5 objects, showing how to decompose in several ways. x x x x x 5 objects x x | x x x 5 = 2 + 3 x x x x | x 5 = 4 + 1 Sample unit sequence:

	• A contextual problem (word problem) is presented to the students such as, "Mia goes to Nan's house. Nan tells her she may have 5 pieces of fruit to take home. There are lots of apples and bananas. How many of each can she take?" • Students find related number pairs using objects (such as cubes or two-color counters), drawings, and/or equations. Students may use different representations based on their experiences, preferences, etc. • Students may write equations that equal 5 such as: o 5=4+1 o 3+2=5 o 2+3=4+1 This is a good opportunity for students to systematically list all the possible number pairs for a given number. For example, all the number pairs for 5 could be listed as 0+5, 1+4, 2+3, 3+2, 4+1, and 5+0. Students should describe the pattern that they see in the addends, e.g., each number is one less or one than the previous addend.
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**. The number pairs that total ten are foundational for students' ability to work fluently within base-ten numbers and operations. Different models, such as ten-frames, cubes, two-color counters, etc., assist students in visualizing these number pairs for ten. Example 1: Students place three objects on a ten frame and then determine how many more are needed to "make a ten." Students may use electronic versions of ten frames to develop this skill.  Example 2: The student snaps ten cubes together to make a "train." • Student breaks the "train" into two parts. The student counts how many are in each part and record the associated equation (10 = ___ + ___).

	• Student breaks the "train into two parts, then counts how many are in one part and determines how many are in the other part without directly counting that part. Then the student records the associated equation (if the counted part has 4 cubes, the equation would be 10 = 4 + ___). • Student covers up part of the train, without counting the covered part, then counts the cubes that are showing and determines how many are covered up. Then the student records the associated equation (if the counted part has 7 cubes, the equation would be 10 = 7 + ___). Example 3: The student tosses ten two-color counters on the table and records how many of each color are facing up.
K.OA.5. Fluently add and subtract within 5.	**K.OA.5.** This standard focuses on students being able to add and subtract numbers within 5. Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately; and skill in performing them flexibly, accurately, and efficiently. Strategies students may use to attain fluency include: • Counting on (e.g., for 3+2, students will state, "3," and then count on two more, "4, 5," and state the solution is "5") • Counting back (e.g., for 4-3, students will state, "4," and then count back three, "3, 2, 1" and state the solution is "1") • Counting up to subtract (e.g., for 5-3, students will say, "3," and then count up until they get to 5, keeping track of how many they counted up, stating that the solution is "2") • Using doubles (e.g., for 2+3, students may say, "I know that 2+2 is 4, and 1 more is 5") • Using Commutative Property (e.g., students may say, "I know that 2+1=3, so 1+2=3") • Using fact families (e.g., students may say, "I know that 2+3=5, so 5-3=2") Students may use electronic versions of five frames to develop fluency of these facts.

Resources
Daily Routine: Math Expressions Teacher Edition Volume 1 or 2: Daily Routines xxxi: Omit Using the Tens and Ones Flip Chart Engage New York Module 4: Use tasks at teacher's discretion. Unit can be found at http://www.engageny.org/sites/default/files/resource/attachments/math-gk-m4-full-module.pdf Common Core Georgia Performance Standards- Unit 5: Use tasks at teacher's discretion. Unit can be found at https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_K_Unit5FrameworkSE.pdf These resources will be used throughout Seymour Units 5 and 6. **Literature:** Ten Black Dots by Donald Crews, Anno's Counting House by Misumasa Anno, The Penny Pot by Stuart Murphy, If You Give a Mouse a Cookie by Laura Numeroff

Unit Assessments
Links below have resources and formative assessments: Hawaii Standards Toolkit- Use assessments at teacher's discretion. http://standardstoolkit.k12.hi.us/common-core/mathematics/mathematics-assessments/assessment-listing/?code=K.OA **Suggested Assessment: Crayons and Markers (KOA1), What is the Addition Number Sentence (KOA5)** Formative Assessments- Common Core Georgia Performance Standards- Kindergarten Unit 5 : www.georgiastandards.org Performance Assessments

Technology: Videos, Websites, Links
Mega Math Destination Math Xtramath.org Ipad Apps

APPENDIX A—TABLE 1

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3
	Total Unknown	**Addend Unknown**	**Both Addends Unknown**
Put Together / Take Apart	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ?	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 – 3 = ?, ? + 3 = 5