Clarification of Standards for Parents
Kindergarten Mathematics Unit 1

Dear Parents,
We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit One. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSEK. CC.1 Count to 100 by ones and by tens.
This standard calls for students to rote count by starting at one and count to 100. When students count by tens, they are only expected to master counting on the decade (0, 10, 20, 30, 40 …).

In unit one, students focus on counting to 100 by ones.

MGSEK.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
This standard includes numbers 0 to 100. This asks for students to begin a rote forward counting sequence from a number other than 1. Thus, given the number 4, the student would count, "4, 5, 6 …"

MGSEK.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).
This standard addresses the writing of numbers and using the written numerals (0-20) to describe the amount of a set of objects. Due to varied development of fine motor and visual development, a reversal of numerals is anticipated for a majority of the students. While reversals should be pointed out to students, the emphasis is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself.

In addition, the standard asks for students to represent a set of objects with a written numeral. The number of objects being recorded should not be greater than 20. 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.

In unit one, students focus on writing numbers from 0-10.

MGSEK.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.
This standard asks students to count a set of objects and see sets and numerals in relationship to one another, rather than as isolated numbers or sets. This standard should first be addressed using numbers 1-5 with teachers building to the numbers 1-10 later in the year. The expectation is that students are comfortable with these skills with the numbers 1-10 by the end of Kindergarten.

In unit one, students focus on the relationship between numbers and quantities from 0-5.

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.**
   This standard reflects the ideas that students implement correct counting procedures by pointing to one object at a time (one-to-one correspondence) using one counting word for every object (one-to-one tagging/synchrony), while keeping track of objects that have and have not been counted. This is the foundation of counting.

b. <u>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.</u>
This standard calls for students to answer the question "How many are there?" by counting objects in a set and understanding that the last number stated when counting a set (…8, 9, 10) represents the total amount of objects: "There are 10 bears in this pile" (cardinality). It also requires students to understand that the same set counted three different times will end up being the same amount each time. Thus, a purpose of keeping track of objects is developed. Therefore, a student who moves each object as it is counted recognizes that there is a need to keep track in order to figure out the amount of objects present. While it appears that this standard calls for students to have conservation of number, (regardless of the arrangement of objects, the quantity remains the same), conservation of number is a developmental milestone of which some Kindergarten children will not have mastered. The goal of this objective is for students to be able to count a set of objects; regardless of the formation those objects are placed.

c. <u>Understand that each successive number name refers to a quantity that is one larger.</u>
This standard represents the concept of "one more" while counting a set of objects. Students are to make the connection that if a set of objects was increased by one more object then the number name for that set is to be increased by one as well. Students are asked to understand this concept with and without objects. For example, after counting a set of 8 objects, students should be able to answer the question, "How many would there be if we added one more object?"; and answer a similar question when not using objects, by asking hypothetically, "What if we have 5 cubes and added one more. How many cubes would there be then?" This concept should be first taught with numbers 1-5 before building to numbers 1-10. Students are expected to be comfortable with this skill with numbers to 10 by the end of Kindergarten.

<u>MGSEK.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.</u>
This standard addresses various counting strategies. First, students move objects and count them as they move them. The second strategy is that students line up the objects and count them. Third, students have a scattered arrangement and they touch each object as they count. Lastly, students have a scattered arrangement and count them by visually scanning without touching them. Since the scattered arrangements are the most challenging for students, CCGPS.K.CC.5 calls for students to only count 10 objects in a scattered arrangement, and count up to 20 objects in a line, rectangular array, or circle. Out of these 3 representations, a line is the easiest type of arrangement to count.

In unit one, students focus on counting up to 10 items in a line, circle, and array.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Kindergarten Mathematics Unit 2

Dear Parents,

We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit One. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions ☺

MGSEK.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.*

This standard expects students to use positional words (such as those italicized above) to describe objects in the environment. Kindergarten students need to focus first on location and position of two-and-three-dimensional objects in the real world prior to describing location and position of two-and-three-dimension representations on paper.

MGSEK.G.2 Correctly name shapes regardless of their orientations or overall size.

This standard addresses students‟ identification of shapes based on known examples." Students at this level do not yet recognize triangles that are turned upside down as triangles, since they don't "look like" triangles. Students need ample experiences looking at and manipulating shapes with various typical and atypical orientations. Through these experiences, students will begin to move beyond what a shape "looks like" to identifying particular geometric attributes (e.g., number of sides or corners) that define a shape.

MGSEK.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid").

This standard asks students to identify flat objects (2 dimensional) and solid objects (3 dimensional). This standard can be done by having students sort flat and solid objects, or by having students describe the appearance or thickness of shapes.

MGSEK.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

This standard asks students to note similarities and differences between and among 2-D and 3-D shapes using informal language. These experiences help young students begin to understand how 3-dimensional shapes are composed of 2-dimensional shapes (e.g.., the base and the top of a cylinder is a circle; a circle is formed when tracing a sphere).

MGSEK.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

This standard asks students to apply their understanding of geometric attributes of shapes in order to create given shapes. For example, a student may roll a clump of play-doh into a sphere or use their finger to draw a triangle in the sand table, recalling various attributes in order to create that particular shape.

MGSEK.G.6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"

This standard moves beyond identifying and classifying simple shapes to manipulating two or more shapes to create a new shape. This concept begins to develop as students‟ first move, rotate, flip, and arrange puzzle pieces. Next, students use their experiences with puzzles to move given shapes to make a design (e.g., "Use the 7 tangram pieces to make a fox."). Finally, using these previous foundational experiences, students manipulate simple shapes to make a new shape.

MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)

This standard asks students to identify similarities and differences between objects (e.g., size, color, shape) and use the identified attributes to sort a collection of objects. Once the objects are sorted, the student counts the amount in each set. Once each set is counted, then the student is asked to sort (or group) each of the sets by the amount in each set.

For example, when given a collection of buttons, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the orange buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), orange (3), purple (4). Finally, the student organizes the groups by the quantity in each group (Orange buttons (3), Green buttons next (4), Purple buttons with the green buttons because purple also had (4), Blue buttons last (5).

This objective helps to build a foundation for data collection in future grades. In later grade, students will transfer these skills to creating and analyzing various graphical representations.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Kindergarten Mathematics Unit 3

Dear Parents,
We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit Two. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSEK. CC.1 Count to 100 by ones and by tens.
This standard calls for students to rote count by starting at one and count to 100. When students count by tens, they are only expected to master counting on the decade (0, 10, 20, 30, 40 …).

In unit three, students focus on counting to 100 by ones.

MGSEK.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).
This standard addresses the writing of numbers and using the written numerals (0-20) to describe the amount of a set of objects. Due to varied development of fine motor and visual development, a reversal of numerals is anticipated for a majority of the students. While reversals should be pointed out to students, the emphasis is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself.

In addition, the standard asks for students to represent a set of objects with a written numeral. The number of objects being recorded should not be greater than 20. Students can record the quantity of a set by selecting a number card or tile (numeral recognition) or writing the numeral. Students can also create a set of objects based on the numeral presented.

MGSEK.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.
This standard asks students to count a set of objects and see sets and numerals in relationship to one another, rather than as isolated numbers or sets. This standard should first be addressed using numbers 1-5 with teachers building to the numbers 1-10 later in the year. The expectation is that students are comfortable with these skills with the numbers 1-10 by the end of Kindergarten.

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.**
   This standard reflects the ideas that students implement correct counting procedures by pointing to one object at a time using one counting word for every object, while keeping track of objects that have and have not been counted. This is the foundation of counting.

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.**
   This standard calls for students to answer the question "How many are there?" by counting objects in a set and understanding that the last number stated when counting a set (…8, 9, 10) represents the total amount of objects: "There are 10 bears in this pile" (cardinality). It also requires students to understand that the same set counted three different times will end up being the same amount each time. Thus, a purpose of keeping track of objects is developed. Therefore, a student who moves each object as it is counted recognizes that there is a need to keep track in order to figure out the amount of objects present. While it appears that this standard calls for students to have conservation of number, (regardless of the arrangement of objects, the quantity remains the same), conservation of number is a developmental milestone of which some Kindergarten children will not have mastered. The goal of this objective is for students to be able to count a set of objects; regardless of the formation those objects are placed.

c. **Understand that each successive number name refers to a quantity that is one larger.**

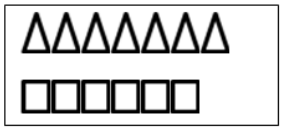
This standard represents the concept of "one more" while counting a set of objects. Students are to make the connection that if a set of objects was increased by one more object then the number name for that set is to be increased by one as well. Students are asked to understand this concept with and without objects. For example, after counting a set of 8 objects, students should be able to answer the question, "How many would there be if we added one more object?"; and answer a similar question when not using objects, by asking hypothetically, "What if we have 5 cubes and added one more. How many cubes would there be then?" This concept should be first taught with numbers 1-5 before building to numbers 1-10. Students are expected to be comfortable with this skill with numbers to 10 by the end of Kindergarten.

MGSEK.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.

This standard addresses various counting strategies. First, students move objects and count them as they move them. The second strategy is that students line up the objects and count them. Third, students have a scattered arrangement and they touch each object as they count. Lastly, students have a scattered arrangement and count them by visually scanning without touching them. Since the scattered arrangements are the most challenging for students, CCGPS.K.CC.5 calls for students to only count 10 objects in a scattered arrangement, and count up to 20 objects in a line, rectangular array, or circle. Out of these 3 representations, a line is the easiest type of arrangement to count.

MGSEK.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

This standard expects mastery of up to ten objects. Students can use matching strategies (Student 1), counting strategies or equal shares (Student 3) to determine whether one group is greater than, less than, or equal to the number of objects in another group (Student 2).

Student 1	**Student 2**	**Student 3**
I lined up one square and one triangle. Since there is one extra triangle, there are more triangles than squares. 	I counted the squares and I got 8. Then I counted the triangles and got 9. Since 9 is bigger than 8, there are more triangles than squares.	I put them in a pile. I then took away objects. Every time I took a square, I also took a triangle. When I had taken almost all of the shapes away, there was still a triangle left. That means there are more triangles than squares.

MGSEK.CC.7 Compare two numbers between 1 and 10 presented as written numerals.

This standard calls for students to apply their understanding of numerals 1-10 to compare one from another. Thus, looking at the numerals 8 and 10, a student must be able to recognize that the numeral 10 represents a larger amount than the numeral 8. Students should begin this standard by having ample experiences with sets of objects (CCGPS.K.CC.3 and CCGPS.K.CC.6) before completing this standard with just numerals. Based on early childhood research, students should not be expected to be comfortable with this skill until the end of kindergarten.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Kindergarten Mathematics Unit 4

Dear Parents,

We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit Four. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSEK.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

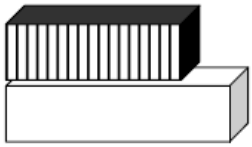
This standard calls for students to describe measurable attributes of objects, such as **length**, **weight**, **size**. For example, a student may describe a shoe as "This shoe is **heavy**! It's also really **long**." This standard focuses on using descriptive words and does not mean that students should sort objects based on attributes. Sorting appears in a different Kindergarten standard.

MGSEK.MD.2 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. ***For example, directly compare the heights of two children and describe one child as taller/shorter.***

This standard asks for direct comparisons of objects. Direct comparisons are made when objects are put next to each other, such as two children, two books, two pencils. For example, a student may line up two blocks and say, "This block is a lot longer than this one." Students are not comparing objects that cannot be moved and lined up next to each other.

Through ample experiences with comparing different objects, children should recognize that objects should be matched up at the end of objects to get accurate measurements. Children need multiple experiences to move beyond the idea that ….
"Sometimes this block is **longer than** this one and sometimes it's **shorter** (depending on how I lay them side by side) and that's okay." "This block is always longer than this block (with each end lined up appropriately)."
Before conservation of length: The striped block is longer than the plain block when they are lined up like this. But when I move the blocks around, sometimes the plain block is longer than the striped block.

After conservation of length: I have to line up the blocks to measure them. The plain block is always longer than the striped block.



MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. ***(Limit category counts to be less than or equal to 10.)***

This standard asks students to identify similarities and differences between objects (e.g., size, color, shape) and use the identified attributes to sort a collection of objects. Once the objects are sorted, the student counts the amount in each set. Once each set is counted, then the student is asked to sort (or group) each of the sets by the amount in each set.

For example, when given a collection of buttons, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the orange buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), orange (3), and purple (4). Finally, the student organizes the groups by the quantity in each group (Orange buttons (3), Green buttons next (4), Purple buttons with the green buttons because purple also had (4), Blue buttons last (5).

This objective helps to build a foundation for data collection in future grades. In later grades, students will transfer these skills to creating and analyzing various graphical representations.

Thank you in advance for all you do for your child! ☺

The Kindergarten Team

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Kindergarten Mathematics Unit 5

Dear Parents,

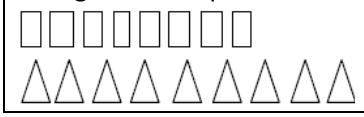
We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit Five. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSEK.CC.1 Count to 100 by ones and by tens.

This standard calls for students to rote count by starting at one and count to 100. When students count by tens, they are only expected to master counting on the decade (0, 10, 20, 30, 40 …).

MGSEK.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

This standard expects mastery of up to ten objects. Students can use matching strategies (Student 1), counting strategies or equal shares (Student 3) to determine whether one group is greater than, less than, or equal to the number of objects in another group (Student 2).

Student 1	**Student 2**	**Student 3**
I lined up one square and one triangle. Since there is one extra triangle, there are more triangles than squares. 	I counted the squares and I got 8. Then I counted the triangles and got 9. Since 9 is bigger than 8, there are more triangles than squares.	I put them in a pile. I then took away objects. Every time I took a square, I also took a triangle. When I had taken almost all of the shapes away, there was still a triangle left. That means there are more triangles than squares.

MGSEK.CC.7 Compare two numbers between 1 and 10 presented as written numerals.

This standard calls for students to apply their understanding of numerals 1-10 to compare one from another. Thus, looking at the numerals 8 and 10, a student must be able to recognize that the numeral 10 represents a larger amount than the numeral 8. Students should begin this standard by having ample experiences with sets of objects (CCGPS.K.CC.3 and CCGPS.K.CC.6) before completing this standard with just numerals. Based on early childhood research, students should not be expected to be comfortable with this skill until the end of kindergarten.

MGSEK.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings , sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

This standard asks students to demonstrate the understanding of how objects can be joined (addition) and separated (subtraction) by representing addition and subtraction situations in various ways. This objective is primarily focused on understanding the concept of addition and subtraction, rather than merely reading and solving addition and subtraction number sentences (equations). In quarter one, students investigate addition and subtraction concepts within 5.

MGSEK.OA.2 Solve addition and subtraction word problems, and add and subtract within 5, e.g., by using objects or drawings to represent the problem.

This standard asks students to solve problems presented in a story format (context) with a specific emphasis on using objects or drawings to determine the solution. This objective builds upon their understanding of addition and subtraction from K.OA.1, to solve problems. Again, numbers should not exceed 5 in quarter one.

Teachers should be cognizant of the three types of problems. There are three types of addition and subtraction problems: Result Unknown, Change Unknown, and Start Unknown. These types of problems become increasingly difficult for students. Research has found that Result Unknown problems are easier than Change and Start Unknown problems. Kindergarten students should have experiences with all three types of problems. The level of difficulty can be decreased by using smaller numbers or increased by using larger numbers.

MGSEK.OA.3 Decompose numbers less than or equal to 5 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).

This standard asks students to understand that a set of (5) object can be broken into two sets (3 and 2) and still be the same total amount (5). In addition, this objective asks students to realize that a set of objects (5) can be broken in multiple ways (3 and 2; 4 and 1). Thus, when breaking apart a set (decomposing), students develop the understanding that a smaller set of objects exists within that larger set (inclusion). This should be developed in context before moving into how to represent decomposition with symbols (+, -, =).

Example:

"Bobby Bear is missing 5 buttons on his jacket. How many ways can you use blue and red buttons to finish his jacket? Draw a picture of all your ideas. Students could draw pictures of:

•4 blue and 1 red button •3 blue and 2 red buttons •2 blue and 3 red buttons •1 blue and 4 red buttons

After the students have had numerous experiences with decomposing sets of objects and recording with pictures and numbers, the teacher eventually makes connections between the drawings and symbols: 5=4+1, 5=3+2, 5=2+3, and 5=1+4.

The number sentence only comes after pictures or work with manipulatives, and students should never give the number sentence without a mathematical representation.

MGSEK.OA.4 For any number from 1 to 5, find the number that makes 5 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

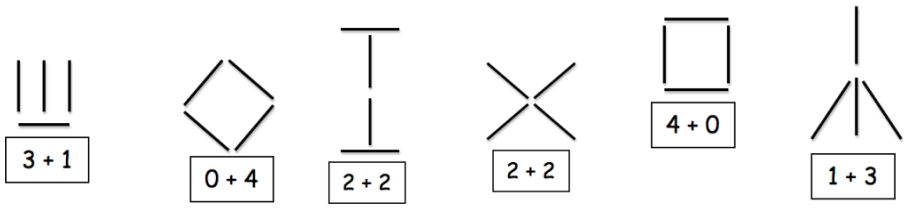
Once students have had experiences breaking apart ten into various combinations, this asks students to find a missing part of 5.

Example:

"A full case of juice boxes has 5 boxes. There are only 3 boxes in this case. How many juice boxes are missing?

MGSEK.OA.5 Fluently add and subtract within 5.

Students are fluent when they display accuracy (correct answer), efficiency (a reasonable amount of steps in about 3 seconds without resorting to counting), and flexibility (using strategies such as the distributive property). Students develop fluency by understanding and internalizing the relationships that exist between and among numbers. Oftentimes, when children think of each "fact" as an individual item that does not relate to any other "fact", they are attempting to memorize separate bits of information that can be easily forgotten. Instead, in order to fluently add and subtract, children must first be able to see sub-parts within a number. Once they have reached this milestone, children need repeated experiences with many different types of concrete materials (such as cubes, chips, and buttons) over an extended amount of time in order to recognize that there are only particular sub-parts for each number. Therefore, children will realize that if 3 and 2 is a combination of 5, then 3 and 2 cannot be a combination of 6. For example, after making various arrangements with toothpicks, students learn that only a certain number of sub-parts exist within the number 4:



Then, after numerous opportunities to explore, represent and discuss "4", a student becomes able to fluently answer problems such as, "One bird was on the tree. Three more birds came. How many are on the tree now?" and "There was one bird on the tree. Some more came. There are now 4 birds on the tree. How many birds came?" Traditional flash cards or timed tests have not been proven as effective instructional strategies for developing fluency. Rather, numerous experiences with breaking apart actual sets of objects help children internalize parts of number.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Kindergarten Mathematics Unit 6

Dear Parents,
We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit Six. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSEK.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
This standard asks students to demonstrate the understanding of how objects can be joined (addition) and separated (subtraction) by representing addition and subtraction situations in various ways. This objective is primarily focused on understanding the concept of addition and subtraction, rather than merely reading and solving addition and subtraction number sentences (equations). In quarter four, students investigate addition and subtraction concepts within 10.

MGSEK.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.
This standard asks students to solve problems presented in a story format (context) with a specific emphasis on using objects or drawings to determine the solution. This objective builds upon their understanding of addition and subtraction from K.OA.1, to solve problems. Once again, numbers should not exceed 10.

Teachers should be cognizant of the three types of problems. There are three types of addition and subtraction problems: Result Unknown, Change Unknown, and Start Unknown. These types of problems become increasingly difficult for students. Research has found that Result Unknown problems are easier than Change and Start Unknown problems. Kindergarten students should have experiences with all three types of problems. The level of difficulty can be decreased by using smaller numbers (up to 5) or increased by using larger numbers (up to 10).

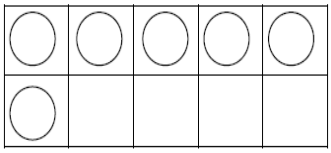
MGSEK.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
This standard asks students to understand that a set of (5) object can be broken into two sets (3 and 2) and still be the same total amount (5). In addition, this objective asks students to realize that a set of objects (5) can be broken in multiple ways (3 and 2; 4 and 1). Thus, when breaking apart a set (decomposing), students develop the understanding that a smaller set of objects exists within that larger set (inclusion). This should be developed in context before moving into how to represent decomposition with symbols (+, -, =).

Example:
"Bobby Bear is missing 5 buttons on his jacket. How many ways can you use blue and red buttons to finish his jacket? Draw a picture of all your ideas. Students could draw pictures of:
- 4 blue and 1 red button
- 3 blue and 2 red buttons
- 2 blue and 3 red buttons
- 1 blue and 4 red buttons

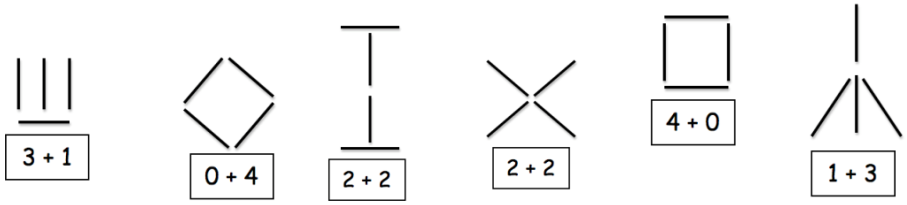
After the students have had numerous experiences with decomposing sets of objects and recording with pictures and numbers, the teacher eventually makes connections between the drawings and symbols: 5=4+1, 5=3+2, 5=2+3, and 5=1+4. The number sentence only comes after pictures or work with manipulatives, and students should never give the number sentence without a mathematical representation.

MGSEK.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.
This standard builds upon the understanding that a number can be decomposed into parts (K.OA.3). Once students have had experiences breaking apart ten into various combinations, this asks students to find a missing part of 10.

Example:
"A full case of juice boxes has 10 boxes. There are only 6 boxes in this case. How many juice boxes are missing?

Student 1	**Student 2**	**Student 3**
Using a Ten-Frame I used 6 counters for the 6 boxes of juice still in the case. There are 4 blank spaces, so 4 boxes have been removed. This makes sense since 6 and 4 more equals 10. 	*Think Addition* I counted out 10 cubes because I knew there needed to be ten. I pushed these 6 over here because there were in the container. These are left over. So there's 4 missing.	*Basic Fact* I know that it's 4 because 6 and 4 is the same amount as 10.

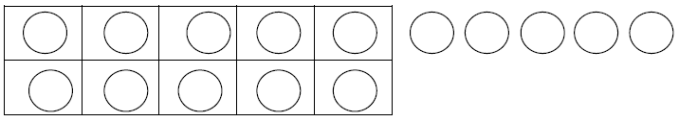
MGSEK.OA.5 Fluently add and subtract within 5.
Students are fluent when they display accuracy (correct answer), efficiency (a reasonable amount of steps in about 3 seconds without resorting to counting), and flexibility (using strategies such as the distributive property). Students develop fluency by understanding and internalizing the relationships that exist between and among numbers. Oftentimes, when children think of each "fact" as an individual item that does not relate to any other "fact", they are attempting to memorize separate bits of information that can be easily forgotten. Instead, in order to fluently add and subtract, children must first be able to see sub-parts within a number (inclusion, K.CC.4.c). Once they have reached this milestone, children need repeated experiences with many different types of concrete materials (such as cubes, chips, and buttons) over an extended amount of time in order to recognize that there are only particular sub-parts for each number. Therefore, children will realize that if 3 and 2 is a combination of 5, then 3 and 2 cannot be a combination of 6. For example, after making various arrangements with toothpicks, students learn that only a certain number of sub-parts exist within the number 4:



Then, after numerous opportunities to explore, represent and discuss "4", a student becomes able to fluently answer problems such as, "One bird was on the tree. Three more birds came. How many are on the tree now?" and "There was one bird on the tree. Some more came. There are now 4 birds on the tree. How many birds came?" Traditional flash cards or timed tests have not been proven as effective instructional strategies for developing fluency.* Rather, numerous experiences with breaking apart actual sets of objects help children internalize parts of number.

MGSEK.NBT.1 Compose and 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 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
This standard is the first time that students move beyond the number 10 with representations, such as objects (manipulatives) or drawings. The spirit of this standard is that students separate out a set of 11-19 objects into a group of ten objects with leftovers. This ability is a pre-cursor to later grades when they need to understand the complex concept that a group of 10 objects is also one ten (unitizing). Ample experiences with ten frames will help solidify this

concept. Research states that students are not ready to unitize until the end of first grade. Therefore, this work in Kindergarten lays the foundation of composing tens and recognizing leftovers.



MGSEK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. ***(Limit category counts to be less than or equal to 10.)***

This standard asks students to identify similarities and differences between objects (e.g., size, color, shape) and use the identified attributes to sort a collection of objects. Once the objects are sorted, the student counts the amount in each set. Once each set is counted, then the student is asked to sort (or group) each of the sets by the amount in each set.

For example, when given a collection of buttons, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the orange buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), orange (3), and purple (4). Finally, the student organizes the groups by the quantity in each group (Orange buttons (3), Green buttons next (4), Purple buttons with the green buttons because purple also had (4), Blue buttons last (5).

This objective helps to build a foundation for data collection in future grades. In later grades, students will transfer these skills to creating and analyzing various graphical representations.

Thank you in advance for all you do for your child! ☺

The Kindergarten Team

(Adapted from Henry County Schools)