TN Department of Education

Kindergarten

Instructional Focus Documents

Introduction:

The purpose of this document is to provide teachers a resource which contains:

- The Tennessee grade level mathematics standards
- Evidence of Learning Statements for each standard
- Instructional Focus Statements for each standard

Evidence of Learning Statements:

The evidence of learning statements are guidance to help teachers connect the Tennessee Mathematics Standards with evidence of learning that can be collected through classroom assessments to provide an indication of how students are tracking towards grade-level conceptual understanding of the Tennessee Mathematics Standards. These statements are divided into either four or seven levels. For kindergarten, the standards that provide seven levels are congruent with the scoring rubrics for the kindergarten portfolio. Standards that only provide four levels are not included as a part of the portfolio scoring rubric.

- Level 1: Performance at this level demonstrates that the student has a minimal understanding and has a nominal ability to apply the grade-/course-level knowledge and skills defined by the Tennessee academic standards.
- Level 2: Performance at this level demonstrates that the student is approaching understanding and has a partial ability to apply the grade-/course-level knowledge and skills defined by the Tennessee academic standards.
- Level 3: Performance at this level demonstrates that the student has a comprehensive understanding and thorough ability to apply the grade-/course-level knowledge and skills defined by the Tennessee academic standards.
- Levels 4-7: Performance at these levels demonstrates that the student has an extensive understanding and expert ability to apply the grade-/course-level knowledge and skills defined by the Tennessee academic standards.

The evidence of learning statements are categorized in the same way to provide examples of what a student who has a particular level of conceptual understanding of the Tennessee mathematics standards will most likely be able to do in a classroom setting. The provided evidence of learning statements are examples of what students will most likely be able to do and do not represent an exhaustive list.

Instructional Focus Statements:

Instructional focus statements provide guidance to clarify the types of instruction that will help a student progress along a continuum of learning. These statements are written to provide strong guidance around Tier I, on-grade level instruction. Thus, the instructional focus statements are written for level 3 and 4.

TN Department of Education

Counting and Cardinality (CC)

Standard K.CC.A.1[1] (Major Work of the Grade)

Count to 100 by ones, fives, and tens. Count backward from 10.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Begin counting. Students are emergent counters at this level. Students begin rote counting at 1 (or is directed by the teacher to start at 1) and count to any number less than 100. Some numbers in the number sequence may be out of order or skipped.	Count to 100 by ones, counts to 100 by fives, counts to 100 by tens, or counts backward from 10. A student should be able to complete two of the tasks. The others tasks a student maybe able to start and only partially complete.	Count to 100 by ones, fives, and tens. Count backward from 10 by ones.	Given a counting sequence by ones (starts at 1), identify at least three missing consecutive numbers (e.g., Identify missing numbers on a hundreds chart).	Count to 100 by ones, twos, fives, and tens. Given a counting sequence by ones (starts at 1), identify at least three missing non-consecutive numbers (Example-Identify missing numbers on a hundreds chart). Given a counting sequence by tens (starts at 10), identify at least three missing consecutive numbers.	Count backward from 10 by ones and fives. Given a counting sequence by ones (starts at 1), identify at least four non-consecutive missing numbers (Example-Identify missing numbers on a hundreds chart). Given a counting sequence by tens (starts at 10) identify at least three missing non-consecutive numbers. Given a counting sequence by fives (starts at 5) identify at least three missing consecutive numbers.	Count to 100 by ones, twos, threes, fives, and tens. Count backward from 10 by ones, fives, and twos. Given a counting sequence by ones (starts at 1), identify at least five non-consecutive missing numbers. Given a counting sequence by tens (starts at 10) identify at least four missing non-consecutive numbers. Given a counting sequence by fives (starts at 5) identify at least three missing non-consecutive numbers. Given a counting sequence by twos

[1] Standard K.CC.A.1 has seven levels of Evidence of Learning Statements as it is a Portfolio Standard.

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
						(starts at 2) identify at least three missing consecutive numbers.

Instructional Focus Statements

Level 3:

Several progressions within the standards are grounded in students first knowing number names and counting sequences. Specifically, a conceptual understanding of counting and cardinality will be necessary before students can develop a deep conceptual understanding of specifically the standards within both the Operations and Algebraic Thinking (OA) and Numbers and Operations in Base Ten (NBT) domains throughout grades K through 2.

That said, the instructional focus for standard K.CC.A.1 should initially be on having students count by ones over a small range of numbers. The range will increase over time depending on the needs of each individual student. It is helpful to associate number sequences with situations with which students are already familiar. Additionally, this standard provides an opportunity to bring literature into the classroom as there are many nursery rhyme and counting based books available.

As students begin to rote count more fluently, introducing them to the numeral representations for each number will allow more avenues for students to conceptually develop their understanding of the number system. Incorporating a hundreds chart when counting by ones offers a manipulative for students to connect the verbal and written forms of numbers. Additionally, it offers a very nice extension when students move to skip counting allowing students to discover the patterns that exist when skip counting by first tens and then by fives. It is important to note that a strong understanding of skip counting is foundational to students when they begin learning about multiplication in grade 3.

The goal for this standard is for students to count in these different ways by the end of the grade. These skills should develop over time due to the readiness of the student. The most natural progression is for students to count by ones, tens, fives, and then backwards. It is also important to note that it is not necessary for a student to completely master one prior to beginning to work with another.

This standard can integrate nicely with standard K.MD.B.3 where students learn to identify and understand the value of pennies, nickels, and dimes. Once students have developed a conceptual understanding of what the value of a coin is, these provide a manipulative that can be used with skip counting. One note of caution, the coins provide a manipulative that can be used but in doing so they do not necessarily reinforce a conceptual understanding of skip counting as students cannot see, for example, the five pennies that make up a nickel.

Students can usually say the counting words up to a given number before they use these numbers to count objects or to identify the number of objects in a group. Students become fluent in saying the counting sequence so that when instruction shifts to connecting counting to cardinality, they can focus on, for example, the one-to-one aspects of cardinality when instruction shifts to standard K.CC.B.4 without having to deeply focus on simply naming the numbers.

Levels 4-7:

As students demonstrate their ability to rote count in multiple ways, instruction should shift to provide multiple opportunities for students to interact with sequences that begins with the starting number in the counting sequence(1, 5, or 10) and have them identify missing numbers (both consecutive and non-consecutive) within the sequence. Hundred charts are a particularly helpful tool for this task. Additionally students can be challenged to skip count by other numbers.

Standard K.CC.A.2[2] (Major Work of the Grade)

Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Begin counting. Students are emergent counters at this level. Students may only be able to begin rote counting at 1 (or is directed by the teacher to start at one) and count to any number less than 100. Some numbers in the number sequence may be out of order or skipped.	Count forward from a given number greater than 20 by ones. Students can typically provide at least the next ten numbers in the sequence.	Count forward from a given number greater than 10 by ones. Students can typically provide the next twenty numbers in the sequence. Students can count starting at teen numbers as well as non-teen numbers (e.g., a student can start at 13 and then repeat the process starting at 22).	Identify consecutive and non-consecutive missing numbers when given a counting sequence by ones starting at a number other than 1 (e.g., identify missing numbers on a partial hundreds chart). Students may also be able to complete this with other counting sequences such as counting sequences by 5, 10, or 2. Count forward from a given number within the known sequence other than ones (greater than 5 by fives, greater than 10 by tens, greater than 2 by twos). Students can provide several sequential entries in the sequence. Use a given set of consecutive number cards to place the cards in the correct counting order. Cards do not start with 1 (e.g., given cards labeled 28-49, place the cards in the correct counting order).

[2] [2] Standard K.CC.A.2 has four levels of Evidence of Learning statements as it is not a Portfolio Standard.

Instructional Focus Statements

Level 3:

The instructional focus for this standard should be extending a student's rote counting skills developed in standard K.CC.A.1 so that they are able to start at any number that is not at the beginning of a counting sequence. As the teen numbers are particularly difficult for students, it is important to make sure that students have ample opportunity to work with these numbers. Being able to count forward, beginning from a given number within the known sequence is foundational for students to be able to access addition and subtraction strategies such as counting on in subsequent grades.

Level 4:

As students' progress in their conceptual understanding, they should work with skip-counting sequences first focusing on sequences of tens and fives and then extending to other sequences. Additionally, they should be identifying missing numbers within counting sequences that begins with any number in the counting sequence and identify missing numbers (both consecutive and non-consecutive) within the sequence. Partial hundred charts are a particularly helpful tool for this task. Developing an understanding of ordering is also relevant to this standard. Students can demonstrate an understanding of sequencing by correctly ordering a group of consecutive numbers in a counting sequence. As with standard K.CC.A.1, while connecting written numbers and verbal numbers is not explicit in this standard (a limited set appears in standard K.CC.A.3), when students develop the ability to connect the two, there are more avenues for students to conceptually develop their understanding of the number system.

Standard K.CC.A.3 (Major Work of the Grade)

Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Print the distinctive features of a number but may not correctly form each number from 0 to 10. Reversal of a digit is acceptable. Represent a number of objects with a written numeral 0-10 (may not be correctly formed) or select the correct number that represents the number of objects (e.g., show students a collection of items and have them match the appropriate numeral card with number of items in the set.).	Write numbers from 0 to 10. Represent a number of objects with a written numeral 0 to 10. NOTE: Printed reversal of a digit is acceptable.	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0 to 20. NOTE: Printed reversal of a digit is acceptable. Digits must be in the correct place value order. (e.g., 21 maybe not be accepted for 12).	Use a given printed number from 10 to 20 to correctly identify the number and represent the number with counters. NOTE: Printed reversal of a digit is acceptable. Digits must be in the correct place value order. (e.g., 21 maybe not be accepted for 12).	Use a given printed number from 10 to 20 and a partial collection of objects within 5 numbers below the given number to correctly identify the number and correctly represent the number with counters (e.g., teacher shows the number card 15 and 11 counters. The student identifies the number 15 and adds 4 more counters to make a collection of 15). NOTE: Printed reversal of a digit is acceptable. Digits must be in the correct place value order. (e.g., 21 maybe not be accepted for 12).	Write numbers from 0 to 20 with no printed reversal of digits. Represent a number of objects with a written numeral 0-20 with no printed reversal of digits. Use a given a printed number from 10 to 20 and a partial collection of objects more than 5 numbers below the given number to correctly identify the number and correctly represent the number with counters. Use a given a printed number from 10 to 20 and a collection of objects that exceeds the given number by no more than 5 to correctly identify the number and correctly remove objects until the objects remaining represents the number.	Use a given a printed number from 10 to 20 and a collection of objects that exceeds the given number by more than five to correctly identify the number and correctly remove objects until the objects remaining represents the number.

Instructional Focus Statements

Level 3:

Instruction for this standard should focus on developing a student's ability to write the numerals from 0 to 20 while also connecting the written form to the number of objects represented by a group. Students need to first begin recognizing written numerals before they begin generating them on their own. While they are learning what the written numerals look like, it is helpful for them to begin connecting this to the number of objects in a group. Students should be provided with a wide variety of opportunities to recognize written numerals. This can be accomplished in a variety of ways. One particularly helpful tool is a deck of cards where each card displays not only the printed number, but also a picture representing a count of that many objects.

Once students are comfortable identifying written numerals, they progress to looking at a collection and matching the number of items in the collection with the appropriate count. Simultaneously, students should be given the opportunity to practice writing their numerals. This does not have to be strictly done with paper and pencil. There are many other tactile methods such as writing numbers in sand that will help solidify for students how to write numbers. It is important to note that it is developmentally appropriate for students to reverse digits. Giving students kinesthetic experiences where they can form numerals may help overcome this.

Finally, instruction should focus on connecting the two skills: determining the number of objects in a group and providing a written numeral to represent the count. It is beneficial to teach this standard alongside standard K.CC.B.4 so that students count the objects and then represent what they have counted with a written numeral that they understand represents the number of objects in the group. It is important that students understand that the numeral is the written representation of a number.

Levels 4-7:

Once students understand the connection that exists between written numerals and the number of objects in a group, they should be able to extend their thinking to flexibly work with verbal, written, and concrete representations of numbers. One such way would be to identify when an incorrect count is given for the number of objects in a group. Once the mistake is identified, students should be able to correct the mistake in two different ways: write down a numeral to accurately represent how many items are in the group and correct the mistake by adjusting the group of objects so that it accurately represents the number of items that were initially incorrectly indicated to be in the group. It is important to push students thinking so that they seamlessly connect verbal, written, and concrete representations of numbers.

Standard K.CC.B.4 (Major Work of the Grade)
Understand the relationship between numbers and quantities; connect counting to cardinality.

K.CC.B.4a When counting objects, say the number names in the standard order, using one-to-one correspondence.
K.CC.B.4b Recognize 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.
K.CC.B.4c Recognize that each successive number name refers to a quantity that is one greater.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	**Students with a level 2 understanding of this standard will most likely be able to:**	**Students with a level 3 understanding of this standard will most likely be able to:**	**Students with a level 4 understanding of this standard will most likely be able to:**
Begin counting. Students are emergent counters at this level. When counting objects, students may say number words and make an attempt at one-to-one correspondence. They may double count, miss objects, or the number sequence may be out of order.	Say the number names in the standard order, using one-to-one correspondence when counting 10 objects. Inconsistently demonstrate that they understand that the last number name said tells the numbers of objects counted and inconsistently identify that the number of objects is the same regardless of their arrangement or the order in which they were counted. Inconsistently demonstrate that they understand each successive number name refers to a quantity that is one greater.	Say the number names in the standard order, using one-to-one correspondence for numbers when counting more than objects. Students can typically easily work with the teen numbers. Demonstrate that they understand that the last number name said tells the numbers of objects counted and identify that the number of objects is the same regardless of their arrangement or the order in which they were counted. Demonstrate that they understand each successive number name refers to a quantity that is one greater.	Quickly recognize and name *(subitize)* how many objects are in a group without counting for multiple representations of the same number. Demonstrate that they understand when a counter is added or removed from a set that the count is one more/one less than the previous count without recounting the set.

Instructional Focus Statements

Level 3:

Instruction should move away from rote counting so that students are connecting number names with the number of objects that number represents in a set. Cardinality refers to the actual count or number of items in a set. Students should begin counting physical objects in order to develop a conceptual understanding of cardinality. In order to count a set of objects, students pair each word said with one object. This is usually facilitated by an indicating act such as moving each object keeping each word said paired with one and only one object. This helps develop an understanding of one-to-one correspondence.

Students need to develop an understanding that the last number name said when counting objects in a set tells the number of objects counted. Prior to reaching this conceptual understanding, a student who is asked "How many blocks?" may regard the counting process itself as the answer, as opposed to the number corresponding to the final object in the set. Students should be allowed to experience counting and discuss what happens when the same number of objects are arranged in differing ways allowing them to discover the second part of standard K.CC.4b—that the number of objects is the same regardless of their arrangement or the order in which they were counted.

Finally, students develop an understanding that each successive number name refers to a quantity that is one larger. As students are developing this understanding, they may have to entirely recount a set of known cardinality when an object is added to the set to indicate that it is one larger. It is important that students gain this understanding as it is a conceptual start for the addition strategy of counting on in grade 1.

Ultimately, throughout the counting and cardinality standards, it is important that students connect physical objects, oral number words, and the printed numerals.

Level 4:

As students solidify their understanding of cardinality, it is important that they develop the skill of quickly being able to recognize the number of objects in a group (subitizing). This skill will be very beneficial to students in subsequent grades. It allows them to develop strong number sense strategies such as unitizing, counting on, composing numbers, and decomposing numbers. Additionally, students should be challenged to think about what happens when an object is removed from a set. How does this effect the cardinality? Ultimately the more opportunities students have to work with varying representations of numbers, the more prepared they will be for future work.

Standard K.CC.B.5 (Major Work of the Grade)

Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1-20, count out that many objects.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Begin counting. Students are emergent counters at this level. When counting objects, students may say number words and make an attempt at one-to-one correspondence. They may double count, miss objects, or the number sequence may be out of order.	Count to answer "how many?" questions with up to 10 things arranged in a line, a rectangular array, and a circle Count to answer "how many?" questions with 5 things in a scattered configuration Given a number up to 10, count out that many objects.	Count to answer "how many?" questions with 11-20 things arranged in a line, a rectangular array, and a circle Count to answer "how many?" questions with 10 things in a scattered configuration Given a number from 10-20, count out that many objects.	Given a collection of objects (between 10-20) and an incorrect count of the collection, accurately identify the correct count	Given a collection of objects (between 10-20) and an incorrect count of the collection that is less than the number of objects, accurately identify the correct count and take from the collection in order to correctly match the given count to the correct amount (e.g., given a collection of 16 counters and told there are 14 counters, the student correctly identifies the count as 16 and can state that if 2 counters are removed, there will be 16 counters).	Given a collection of objects (between 10-20) and an incorrect count of the collection that is more than the number of objects, accurately identify the correct count and add to the collection in order to correctly match the given count to the correct amount. (e.g., given a collection of 16 counters and told there are 18 counters, the student correctly identifies the count as 16 and can state that if 2 counters are added, there will be 18 counters).	Create a situation where they provide a collection of objects (between 10 and 20) and an incorrect count of the collection that is less than the actual number of objects, accurately identify that the solution to the situation would be to add to the collection, and provide the correct solution to the situation. The student presents their problem to a teacher or classmate and lets the teacher or classmate solve their problem. The student determines if the provided answer is correct or incorrect. If incorrect, provides an explanation as to why. Create a situation where they provide a collection of objects (between 10 and 20) and an incorrect count of the collection that is more than the actual number of

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
						objects, accurately identify that the solution to the situation would be to remove objects from the collection, and provide the correct solution to the situation. The student presents their problem to a teacher or classmate and lets the teacher or classmate solve their problem. The student determines if the provided answer is correct or incorrect. If incorrect, provides an explanation as to why.

Instructional Focus Statements

Level 3:

One instructional focus for this standard should revolve around extending students understanding of one-to-one correspondence (K.CC.B.4a) in order to count out up to twenty objects. As with counting objects, students should continue to pair each word said with one object as they count out the specified number of objects. This is usually facilitated by an indicating act such as moving each object keeping each word said paired with one and only one object. Keeping this in place as students work to count out objects reinforces their learning from standard K.CC.B.4a. Additionally, students should be asked to count out objects in a variety of ways. They should be asked verbally to "count out 5 cars" and they should also be handed a card with the numeral 5 printed on it and asked "count out this number of cars". It is important that students interact with both orally provided and written numerals.

A second instructional focus should emphasize counting objects displayed in various ways in order to answer "how many" questions. For the different arrangements exclusively called out in the standard, counting objects arranged in a line is easiest for students as it lessens the propensity to double count an object or skip an object all-together. With more practice, students learn to count objects in more difficult arrangements, such as rectangular arrays, circles, and scattered configurations. Each brings its own challenge for students. With rectangular arrays, students often wither fail to count every row or column or they

will count a row or column twice. With circular arrangements, students need to stop just before the object they started with causing students to often count objects twice or not count objects right before their starting point. With scattered configurations, students need to make a single path through all of the objects so that they avoid skipping or double counting objects.

Levels 4-7:

As students become comfortable counting out a specified number of objects, instruction should shift so that students are provided sets and an incorrect count of the members. They should be tasked with identifying the mistake and identifying the necessary steps to fix the mistake. This higher level of thinking pushes students to make sense of the problem, strategically use the manipulatives provided, and attend to precision by correcting the error further deepening their conceptual understanding of the numbers 1-20.

Standard K.CC.C.6 (Major Work of the Grade)

Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Match the number of objects in one group to the same number of objects in another group (up to 5 objects) in order to identify that the number of objects in the two groups are equal.	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (includes groups with up to 5 objects). Students should be able to compare collections that are greater than, less than, and equal to other collections.	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (includes groups with 6-10 objects). Students should be able to compare collections that are greater than, less than, and equal to other collections.	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (includes groups with 11-20 objects). Students should be able to compare collections that are greater than, less than, and equal to other collections.	Analyze a given collection of objects to create a set that is greater than the given set. Students should identity the number of objects in each collection and use comparative language to describe each relationship.	Analyze a given collection of objects to create 2 sets that are greater than the given set and place the 3 sets in order either from least to greatest or greatest to least. Students should identity the number of objects in each collection and use comparative language to describe each relationship. Analyze a given collection of objects to create a set that is less than the given set. Students should identity the number of objects in each collection and use comparative language to describe each relationship.	Analyze a given collection of objects to create 2 sets that are less than the given set and place the 3 sets in order either from least to greatest or greatest to least. Students should identity the number of objects in each collection and use comparative language to describe each relationship. Analyze a given collection of objects to create 1 set that is less than the given set, 1 set that is equal to the given set, and 1 set that is greater than the given set and place the 3 newly created sets in order either from least to greatest or greatest to least. Students should identity the number of objects in each collection and use comparative language to describe each relationship.

Instructional Focus Statements

Level 3:

Instruction should initially focus of applying and extending students' conceptual understanding of counting and one-to-one correspondence from earlier kindergarten Counting and Cardinality standards to comparing two concrete quantities represented by sets of objects. Initial instruction focuses on matching each item in one group with each item in a second group in order to identify which group has an item(s) left over. As students work with a wide variety of different groupings, it is important that they are using the vocabulary "greater than" and "less than" to describe what they see. It is not the expectation that students notate their findings using the symbolic representations for inequalities. As students are working with a wide variety of situations, they need to encounter a group where no objects are left over when the objects are aligned for one-to-one correspondence eliciting the idea of equality. It is very important that in kindergarten students begin developing a strong conceptual understanding of the concept of equality. Students need to be given multiple opportunities to not only describe the relationship that exists between the size of sets using appropriate mathematical vocabulary, but it is also very important that they are asked to justify their thought processes and explain why a set is greater than, less than, or equal to another set.

It is important that students develop multiple strategies when they are comparing the number of objects in sets. Strategies such as *matching* the objects where students line up both groups and compare using one-to-one correspondence. *Observation* is a strategy where students see that there are more in one set than another. One caution with this strategy is that it is necessary for students to explain "how" they see that one set is larger than another. Students may use the *take away/fair share* method where each time one person removes an object from one set another person removes an object form the other set. Finally *compare counts* can also be used when students count the members of both sets and compare the numeric counts.

As students encounter a wider range of groupings, it is important that they develop an understanding that looks can be deceiving. One group of objects that is very spread out may appear to have more members than a very tightly compacted group of objects. It is important for students to experience groupings that visually appear in a wide variety of ways.

Levels 4-7:

As students become more proficient in comparing the number of objects in sets, extend the range of numbers of items students are working with to include the teen numbers. One additional extension is for students to develop an understanding of ordering which is a natural application of comparisons. This involves students being able to discern between multiple sets which is greater and placing them in a sequential order.

The language of greater than and less than should extend to how many more and how many less questions which begins the foundation for additive thinking (one more than, two more than, one less than etc.). Developing this language and providing a wide range of opportunities helps build a strong foundation for future work with addition and subtraction strategies particularly adding and subtracting compare situations in grade 1.

Standard K.CC.C.7 (Major Work of the Grade)

Compare two given numbers up to 10, when written as numerals, using the terms *greater than, less than*, or *equal to.*

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Match the number of objects in one group to the same number of objects in another group in order to identify that the number of objects in the two groups are equal.	Inconsistently compare two given numbers, when written as numerals, using the terms *greater than, less than,* or *equal to*.	Compare two given numbers up to 10, when written as numerals, using the terms *greater than*, *less than*, or *equal to.*	Name a number that is greater than and a number that is less than a given number less than 10. Choose all cards that represent numbers greater than, less than, and equal to a given number up to 10 from a set of 10 cards with the numerals 1-10 printed on the cards.

Instructional Focus Statements

Level 3:

Instruction should build upon standard K.CC.C.6 for students to move beyond comparing objects to comparing numerals. Students must have a strong conceptual understanding of counting items in a set, recognizing numeral representations, comparing the number of objects in two sets, and associating numbers with the count in each set before they can begin understanding the abstract nature of comparing numbers when they are exclusively presented numerals. It is important that students initially connect numerals with concrete objects when working with this standard. As with standard K.CC.C.6, it is imperative that students be given the opportunity to not only verbalize the answer to a comparison question, but also that they are afforded the opportunity to explain their thinking. As students develop their conceptual understanding of comparing the value of numerals, it is developmentally appropriate for them to build sets of objects and use the strategies mentioned in standard K.CC.C.6 in order to further solidify their understanding.

Level 4:

As with standard K.CC.C.6, students should develop an understanding of ordering which is a natural application of comparisons. This involves students being able to discern between multiple numbers which is greater and placing them in a sequential order. Initially students may need to build sets of objects in order to validate their thinking.

The language of greater than and less than should extend to how many more and how many less questions which begins the foundation for additive thinking (one more than, two more than, one less than etc.). Developing this language and providing a wide range of opportunities helps build a strong foundation for future work with addition and subtraction strategies particularly adding and subtracting compare situations in grade 1.

Operations and Algebraic Thinking (OA)

Standard K.OA.A.1 (Major Work of the Grade)

Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Compose or decompose numbers up to 5 using concrete objects and counting.	Represent addition **and** subtraction (within 5) with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, **or** equations.	Represent addition **and** subtraction (within 10) with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, **or** equations.	Represent and solve expressions using mathematical drawings and equations when given addition expressions (within 10). Represent and solve expressions using mathematical drawings and equations when given subtraction expressions (within 10).	Represent and solve expressions using mathematical drawings and equations when given addition expressions (within 10). The student justifies the solution. References may be made to the student's mathematical drawings and equations. Represent and solve expressions using mathematical drawings and equations when given subtraction expressions (within 10). The student justifies the solution. References may be made to the student's mathematical drawings and equations.	Create an addition expression (within 10), represent and solve the expression using a mathematical drawing and an equation, and justify the solution. Create a subtraction expression (within 10), represent and solve the expression using a mathematical drawing and an equation, and justify the solution.	Analyze a given addition expression and an incorrect solution including both a drawing and an equation (the error could be represented in the equation only, the drawing only, or both) to identify the mistake, explain why the mistake could have happened, and correct the mistake. Analyze a given subtraction expression and an incorrect solution including both a drawing and an equation (the error could be represented in the equation only, the drawing only, or both) to identify the mistake, explain why the mistake could have happened, and correct the mistake.

Instructional Focus Statements

Level 3:

The Operations and Algebraic Thinking (OA) standards in kindergarten focus on developing students' strong conceptual understanding of addition and subtraction within 10. Standard K.OA.A.1 focusses on the various tools students should use as they are representing addition and subtraction. This standard naturally integrates with the other four OA standards as this standard is providing modeling techniques that need to be employed and embedded within instruction for the other OA standards. This standard is not intended to be taught in isolation.

As students are developing an understanding of adding and subtracting within 10, they should first work with small numbers (1-5), building to larger numbers across time. Students should be composing and decomposing numbers using both addition and subtraction up to 10 using a wide variety of manipulatives such as fingers, chips, linking cubes, five frames, and 10 frames. Using fingers is not a concern and is developmentally appropriate in kindergarten. It is important to note that fingers should not remain a student's primary direct modeling method in subsequent grades. Further, when students use drawings in order to explain their thinking, they need not show detail but their drawings should represent the mathematics in the problem. After students develop a conceptual understanding of the operations of addition and subtraction through direct modeling with concrete objects, introduce symbolic representations with expressions and equations.

Students should develop a conceptual understanding of addition as the joining of sets and subtraction as taking items from a set or taking a set apart. Instruction should have some focus on conceptual subitizing. Students need opportunities to experience conceptual subitizing where they see and say the addends and the total (e.g., "two and three make five") when the student sees an arrangement of five dots. This can be accomplished with number talks. Additionally, this standard offers a good opportunity to bring literature into the classroom as there are many appropriate children's books that focus on adding and subtracting within 10. These can be effective mathematical task starters in the classroom.

Students need opportunities to explain their thinking. Students at this grade should be provided with ample opportunities to both speak about and write about mathematics. It is important to build a student's vocabulary using appropriate addition and subtraction vocabulary such as join, combine, plus, minus, take apart, subtract, difference, separate, etc. Note that "total" is an appropriate word to use at this level as opposed to "sum" to avoid confusion with the homonym "some".

Levels 4-7:

Instruction at these levels should be focused in a way so that it continues to help students move along the continuum from concrete to representative strategies. This is accomplished by evolving from direct modeling to representing the mathematics with equations and expressions. It is important to note that keeping the element of explanation whether written or spoken should continue to be a focus. Additionally, students should be challenged to look at incorrect work provided in multiple forms, identify the error, and correct the work. This activity provides students the opportunity to critique the

reasoning of others (MP 3), make sense of problems (MP 1), and reason quantitatively about mathematics (MP 2). Students who can accomplish this have a very deep conceptual understanding of the operations of addition and subtraction.

Standard K.OA.A.2 (Major Work of the Grade)

Add and subtract within 10 to solve contextual problems using objects or drawings to represent the problem.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Add or subtract **within 5** to solve one-step contextual problems, using one of the situations of *add to-result unknown, take-from-result unknown, and put together/take apart-total unknown.* Use concrete objects or mathematical drawings to represent the problem.	Add and subtract **within 10** to solve one-step contextual problems, using two different situations of *add to-result unknown, take-from-result unknown, put together/take apart-total unknown,* and *put together/take apart-addend unknown.* Use concrete objects or mathematical drawings to represent the problem.	Add and subtract **within 10** to solve one-step contextual problems, using three different situations of *add to-result unknown, take-from-result unknown, put together/take apart-total unknown,* and *put together/take apart-addend unknown.* Use concrete objects or mathematical drawings to represent the problem.	Add and subtract **within 10** to solve one-step contextual problems, using the four different situations of *add to-result unknown, take-from-result unknown, put together/take apart-total unknown,* and *put together/take apart-addend unknown.* Use concrete objects or mathematical drawings to represent the problem.	Add and subtract **within 10** to solve one-step contextual problems, using the five different situations of *add to-result unknown, take-from-result unknown, put together/take apart-total unknown, put together/take apart-addend unknown, both addends unknown.* Use concrete objects or mathematical drawings to represent the problem.	Add and subtract **within 10** to solve two-step contextual problems. Use concrete objects or mathematical drawings to represent the problem.	Create a contextual problem that could be solved when given two equations that follow from one another involving both addition and subtraction (e.g., given 3 + 4 =7 and 7-2=5 the student creates a contextual problem that could be solved using these 2 equations).

Instructional Focus Statements

Level 3:

While standard K.OA.A.1 focuses on solidifying an understanding of how to model addition and subtraction while also developing a conceptual understanding of the meaning behind the operations of addition and subtraction, standard K.OA.A.2 focuses on students being able to identify addition and subtraction embedded in contextual problems. Students should still be employing the direct modeling techniques that were introduced in standard K.OA.A.1 to solve the problem once the mathematics is extracted from contextual problems. It is developmentally appropriate to read contextual problems to students as the focus of this standard is for students to be able to solve contextual problems not on their ability to read the problem in the first place.

Students should experience problems embedded in a variety of problem solving situations. Focus should be placed on the following situations: *add to-result unknown, take-from-result unknown, put together/take apart-total unknown, and together/take apart-addend unknown*. The table for common addition and subtraction situations is located on page 20 in the Tennessee Mathematics Standards located here. While certain situations are designated within the standards to be mastered by the end of kindergarten, these are not the only situations to which students should be exposed.
It is important to note that teaching key words does not help students to develop an understanding of these situations. Rather, by using concrete models and drawing pictures, students can relate their actions to whether the situation calls for addition or subtraction.

Levels 4-7:

As students deepen their understanding of problem solving situations, they should continue to experience varying situations with increasing rigor over time. Eventually, students should be challenged with two-step problems that arise from different types of situations some of which involve exclusively addition, some involving exclusively subtraction, and some a mixture of both. Students should continue to employ drawings, diagrams, and even use manipulatives alongside equations as they continue developing their understanding of problem solving situations.

Standard K.OA.A.3 (Major Work of the Grade)

Decompose numbers less than or equal to 10 into addend pairs in more than one way (e.g., 5 = 2 + 3 and 5 = 4 + 1) by using objects or drawings. Record each decomposition using a drawing or writing an equation.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Decompose a number less than or equal to 5 into an addend pair (e.g., 5 = 2 + 3, 5 = 3 + 2, 5 = 4 + 1, 5 = 1 + 4, 5 = 0 + 5, or 5 = 5 + 0) by using objects or drawings.	Decompose a number less than or equal to 10 into addend pairs in at least **2** ways (e.g., 5 = 2 + 3, 5 = 3 + 2, 5 = 4 + 1, 5 = 1 + 4, 5 = 0 + 5, or 5 = 5 + 0) by using objects or drawings, or writing an equation. The commutative property may be used to represent an additional addend pair.	Decompose a number less than or equal to 10 into addend pairs in at least **5** ways (e.g., 5 = 2 + 3, 5 = 3 + 2, 5 = 4 + 1, 5 = 1 + 4, 5 = 0 + 5, or 5 = 5 + 0) by using objects or drawings, or writing an equation. The commutative property may be used to represent an additional addend pair.	Decompose a number between 6 and 10 into addend pairs in at least **7** ways by using objects or drawings, **and** records each decomposition with an equation or expression.	Decompose a number between 6 and 10 into all whole number addend pairs by using objects or drawings, **and** records each decomposition with an equation or expression.	Decompose a number between 6 and 10 into all whole number addend pairs by using objects or drawings, records each decomposition with an equation or expression, and justify/explain (verbal or written) that they have found all possible whole number addend pairs.	Explain how to systematically list all of the different ways to break down a number between 6 and 10 into addend pairs to guarantee that all possible ways have been generated and provide an explanation as to why the system works.

Instructional Focus Statements

Level 3:

Developing a conceptual understanding that numbers can be put together and taken apart in different ways is foundational for future mathematics work. Students need the opportunity to take apart numbers using a wide variety of direct modeling techniques utilizing 5 frames, 10 frames, linking cubes, two colored counters etc. Additionally, students need opportunities to explain their thinking and discuss any patterns that they see when working within 10. Students can find patterns in all of the decompositions of a given number and eventually summarize these patterns for several numbers.

This standard helps students develop their ability to think flexibly with numbers. Students should be looking for and making use of structure (MP 7) while looking for and expressing regularity in repeated reasoning (MP 8) as they decompose numbers.

As students decompose a given number to find all of the partners that compose the number, each decomposition can be recorded with an equation such as 5 = 4+1 by either the teacher or the student. By showing the total on the left and the two addends on the right, this reinforces the concept of 5 being decomposed into say 4 and 1 while also allowing students to understand equations as equal quantities on both sides of the equality symbol.
This standard helps support standard K.OA.A.2 particularly when students are working with the following situations: *put together/take apart* and *both addends unknown*. This problem situation plays an important role in kindergarten as it allow students a contextual situation in which to explore various compositions that make each number. Additional connections exist between this standard and standard K.NBT.A.1 where students focus on composing and decomposing the teen numbers.

Levels 4-7:

Instruction at these levels should focus on students independently symbolically representing decomposition with equations. Students develop an understanding that decomposing 8 into a 5 and 3 can be represented by the equation 8=5 + 3. At this level, the equations need to mirror the mathematics as this helps students build a conceptual understanding of the connection that exists between the numbers, their models, and the mathematical equation.

Ultimately students should be looking for and expressing regularity in repeated reasoning (MP 8) so that they develop a systematic way to list all of the decompositions of any number up to 19 when this standard is paired with standard K.NBT.A.1.

Standard K.OA.A.4 (Major Work of the Grade)

Find the number that makes 10, when added to any given number, from 1 to 9 using objects or drawings. Record the answer using a drawing or writing an equation.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Begin counting. Students are emergent counters at this level. When given a set of less than 5 objects, the student begins counting the objects.	Find the number that makes 5, when added to any given number from 1 to 4 using concrete objects, drawings, or writing an equation or expression.	Find the number that makes 10, when added to any given number from 1 to 9 using concrete objects, drawings, or writing an equation or expression. Students should demonstrate understanding with at least two numbers, one number should be 0-4 and one number should be 5 - 9.	Find the number that makes 10, when added to any given number from 1 to 9 using concrete objects, drawings, or writing an equation or expression. Students should demonstrate understanding with at least two numbers, one number should be 0-4 and one number should be 5 - 9. Students write an equation for each that shows these two numbers equal a total of 10. Analyze a given missing addend equation that equals 10 to create a model with concrete objects or drawings to represent the equation and identify the missing addend.	Analyze a given contextual problem that represents a missing addend equation that equals 10 to make a model with concrete objects or drawings, write an equation to represent the situation, and identify the missing addend.	Analyze a given missing addend equation that equals 10 to create a contextual problem that represents the equation, and provide the solution to the problem.	Analyze a given series of missing addend equations that equal 10 to identify all missing addends, explain at least 1 pattern seen, and explain how the pattern is related to addition (e.g., given 2+?=10, 3 + ? = 10, 4 + ? = 10, and 5 + ? = 10 identify the missing addends as 8,7,6, and 5 and explain that as 1 addend increases by 1 the other decreases by 1 allowing the answer sum to remain 10).

Instructional Focus Statements

Level 3:

Ten is one of the most important numbers in our number system. This standard is building upon the progression of learning begun in the other OA standards. Students experience decomposing 10 in a variety of ways (K.OA.A.3), recognizing number pairs that add to 10 (K.OA.A.2), and now they will be extending their conceptual understanding by being given any number less than 10 and then identifying the other part of the pair so that the sum of the two is 10. Instruction should allow for students to continue utilizing direct modeling with ten frames, linking cubes, two colored counters, Rekenreks, etc. This will be a crucial foundational understanding when students begin using additional addition strategies such as compensation in subsequent grades. It is important to note that the focus for this standard is on identifying the number that makes 10 more so than a student being able to correctly write an equation or expression.

This standard supports the thinking students will need when working with *put together/take apart addend unknown* problem situations in standard K.OA.A.2.

As with many of the other kindergarten standards, this standard offers a good opportunity to bring literature in to the classroom as there are many appropriate children's books that can give context to problems. These can be useful mathematical task starters in the classroom.

Levels 4-7:

Instruction at these levels should be focused in a way so that it continues to help students move along the continuum from concrete to representative strategies. This is accomplished by evolving from direct modeling to representing the mathematics with equations and expressions. It is important to note that keeping the element of explanation whether written or spoken should continue to be a focus. Instruction can also focus on having students create their own addend unknown put together/take apart problem with a sum of ten to further demonstrate their understanding of this standard.

Standard K.OA.A.5 (Major Work of the Grade)
Fluently add and subtract within 10 using mental strategies.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Add within 10 using concrete objects.	Inconsistently add within 10 using mental strategies. Students can sometimes efficiently and accurately produce answers without recording their thinking on paper. Subtract within 10 using concrete objects.	Fluently add and subtract within 10 using mental strategies. Students are consistent in their ability to efficiently and accurately produce answers without recording their thinking on paper.	Fluently add and subtract within 10 using mental strategies. Students are consistent in their ability to efficiently and accurately produce answers without recording their thinking on paper. Students can explain or defend their answer in multiple different ways. Analyze a given incorrect work sample of adding two numbers within 10 to correct the mistake and explain the mathematical misunderstanding that could cause the mistake to happen. Analyze a given incorrect work sample of subtracting two numbers within 10 to correct the mistake and explain the mathematical misunderstanding that could cause the mistake to happen.

Instructional Focus Statements

Level 3:

As stated in the introduction of the Tennessee Mathematics Standards, fluency is the ability to apply procedures accurately, efficiently, and flexibly. By the end of kindergarten, students will be expected to fluently add and subtract within 10 using mental strategies. By the end of grade 1, students will be expected to fluently add and subtract within 20 using mental strategies and know from memory all sums up to 10. By the end of grade 2, students will be expected to extend this understanding to fluently add and subtract within 30 using mental strategies.

Building fluency that is based on mental strategies is a process. Students begin by developing a conceptual understanding of the operations of addition and subtraction through direct modeling. In kindergarten, students are building conceptual understanding as they are working with standards K.OA.A.1, K.OA.A.2, K.OA.A.3, and K.OA.A.4. Additionally within these standards, they are working on developing a mathematical understanding that numbers can be composed and decomposed in a wide variety of ways. Before they reach fluency with mental strategies, students must be given the opportunity to interact with direct modeling in order to have the mathematical foundation needed to move along the continuum towards reaching fluency. This process takes time. Students should be exposed to various strategies and then choose the one that is most efficient and makes the most sense to them. It is important to note that timed tests do not build fluency in students. Exposure to flexible thinking, explaining their thoughts, and appropriate scaffolding over time do. It is also important to note that the kindergarten requirement is not for students to know sums or differences from memory. There is a difference between employing mental strategies and knowing sums from memory.

As students become more fluent with adding and subtracting numbers within 10, they should start to produce answers without recording their thinking and explaining their mental thought process. Additionally, students should have many opportunities to practice, explain their thinking, and compare and make connections with multiple strategies. Number Talks, written explanations, and selecting the strategy that makes the most sense to them will allow students to develop conceptual understanding so that they become fluent with adding and subtracting within 10 over time.

Levels 4:

As students develop a wider range of mental strategies that they are comfortable with and can explain, they should be able to explain the connections that exist between multiple strategies. Students should also be able to explain what misconception took place to produce an incorrect answer. It is imperative that as students transition to using mental strategies that they are asked questions that press for the underlying mathematics and that students provide an explanation of their thinking using precise mathematical vocabulary.

Numbers and Operations in Base Ten (NBT)

Standard K.NBT.A.1 (Major Work of the Grade)

Compose and decompose numbers from 11 to 19 into ten ones and some more ones by using objects or drawings. Record the composition or decomposition using a drawing or by writing an equation.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:	Students with a level 5 understanding of this standard will most likely be able to:	Students with a level 6 understanding of this standard will most likely be able to:	Students with a level 7 understanding of this standard will most likely be able to:
Represent a given number less than 10 with cubes (ones).	Represent a given number from eleven to nineteen, with cubes (ones).	Take a given number from eleven to nineteen to compose the number from a ten and some more ones using objects. Record the composition using a drawing. Take a given number from eleven to nineteen to decompose the number into a ten and some more ones using objects. Record the decomposition using a drawing.	Take a given number from eleven to nineteen to compose the number from a ten and some more ones using objects or a drawing. Record the composition using an equation. Take a given number from eleven to nineteen to decompose the number into a ten and some more ones using objects or a drawing. Record the decomposition using an equation.	Take a given a representation of a number from eleven to nineteen as a ten and some more ones to identity the number and express the number using an equation. (e.g., given a representation of 18 using a stack of ten cubes and 8 additional cubes, correctly identify the quantity as 18 and shows that 18 can be represented as 18 = 10 + 8).	Take a given number between eleven and nineteen to represent the number in 4 different ways (one of which is an equation) that demonstrates a student's understanding of composing and decomposing the number into a ten and some ones.	Take a given number between eleven and nineteen to represent the number in 5 different ways (one of which is an equation) that demonstrates a student's understanding of composing and decomposing the number into a ten and some ones. Additionally, the student is able to explain how the different tools or representations are related to one another.

Instructional Focus Statements

Level 3:

Throughout the early grades, it is imperative that students develop a deep, conceptual understanding of the base ten number system. Instruction in kindergarten should focus on laying the foundation for conceptual understanding of the base-ten number system by drawing special attention to 10 and the teen numbers. Students are learning to view the whole numbers 11-19 as a ten and some more ones. Teen numbers, in general, are particularly difficult for kindergarten students as the words for teen numbers do not make their base-ten meanings evident. For example, "eleven" and "twelve" do not

sound like “ten and one” and “ten and two” while “thirteen, fourteen, fifteen, . . . , nineteen” reverse the order of the ones and tens digits by saying the ones digit first. Also, “teen” must be interpreted as meaning “ten” and the prefixes “thir” and “fif” do not clearly say “three” and “five.”

Thus, the numerals 11, 12, 13 . . . 19 need special instructional attention in order for students to develop a conceptual understanding of them. As students first work with two digit numbers, they initially see a numeral such as 16 looks like “one, six,” not “1 ten and 6 ones.” Layered place value cards can help children see the 0 “hiding” under the ones place and that the 1 in the tens place really is 10 (ten ones). Other helpful tools to use with the teen numbers include base 10 blocks, 10 frames, Rekenreks, linking cubes, and number bonds. By working with teen numbers in this way in kindergarten, students gain a foundation for viewing 10 ones as a new unit called a ten in grade 1.

Additionally, it is important that students are both composing and decomposing the teen numbers. While it seems they are virtually identical, the thought process for students is reversed. Composing is the act of building a number while decomposing is the act of breaking a number apart. The beginning and ending parts of the process are reversed. Composing will be foundational with addition while decomposing is foundational to understanding subtraction.

Levels 4-7:

Instruction at these levels should focus on students symbolically representing both composition and decomposition with equations. Students develop an understanding that composing 15 from a 10 and 5 ones can be modeled with the equation 10 + 5 =15. Similarly they develop an understanding that decomposing 15 into a 10 and 5 ones can be represented by the equation 15=10 + 5. At this level, the equations need to mirror the mathematics as this helps students build a conceptual understanding of the connection that exists between the numbers, their models, and the mathematical equation.

Students should also be making connections between the various models and representations. For example, a student should be able to show the “10” in 15 that has been represented with a Rekenrek, number bond, and with place value cards and explain how the models are similar and how the models are different. Additionally, they may prefer one over the other and the student should be able to explain why.

Measurement and Data (MD)

Standard K.MD.A.1 (Supporting Content)

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

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Describe an object. Students may not describe the object with measurable attributes.	Describe one measurable attribute of an object.	Describe more than one measureable attributes of a single object such as: length, width, height and weight.	Describe how two or more objects are the same and different using common measurable attributes.

Instructional Focus Statements

Level 3:

Kindergarten students are typically able to describe non-measurable attributes of objects such as describing the object by its color, number of sides, or that it is hard or soft. They may also be able to describe objects as small, big, tall, or short. The instructional focus of this standard should be to help students develop an understanding of which of these attributes are measurable and then progress to where students can generate a list of measurable attributes for an object using precise mathematical vocabulary. Students need to be given multiple opportunities to identify and describe different measurable attributes of objects. For example, kindergarteners should be supported to understand that height is the distance from the lowest point to the highest point of an object and that length is the distance from one point to another when objects are laid end to end. They will also need experiences with heavy and light objects to discuss the attribute of weight. Attention should be paid to precise vocabulary such as: length, weight, heavy, light, long, big, small, tall, short, etc. Standard K.MD.A.1 lays the foundation for comparing objects in standard K.MD.A.2.

Level 4:

At this level, students should be comparing and contrasting the attributes of two or more objects using descriptive language. These foundational experiences help students develop an understanding of comparative language such as longer than/shorter than/equal to.

Standard K.MD.A.2 (Supporting Content)

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.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Understand that objects have measurable attributes. Students at this level have an emergent understanding of measurement and have not developed either the ability to identify common attributes or have not developed an understanding of conservation of a measurement (e.g., When a red block and a blue block are lined up edge to edge, students may be able to state that the blue block is longer than the red block; however, when the red block is moved to extend past the blue block, the student thinks the red block is now longer).	Identify which of two given objects is longer/shorter, taller/smaller, etc. with prompting from the teacher.	Directly compare two objects (without measurement) using a common measurable attribute.	Compare two objects using common measurable attributes and restate the comparison using "opposite" vocabulary. Directly compare more than two objects (without measurement) using a common measurable attribute.

Instructional Focus Statements

Level 3:

Instruction for this standard should focus on building on the understanding students have of quantifiable measureable attributes gained in standard K.MD.A.1 to now directly compare two objects with a common measurable attribute. It is important to note that the focus in kindergarten is not on actually performing the act of measuring the desired attribute in objects. It is on comparing by using the senses of sight and feel without actually quantifying the attribute such as length or weight. When comparing the attributes of length or height, kindergarten students will need multiple

experiences in order to discover the importance of lining up the ends of objects in order to have an accurate measurement comparison. Students should be actively engaged in comparing two objects and will be able to see which object has more than/ less than a particular attribute than the other and describe the difference using precise vocabulary. It is important that students participate in conversations when comparing two objects and justify their thinking (MP 3). This discourse will help students not only understand the concept, but also allows students to develop precise measurement comparison vocabulary. Instruction should avoid using vague phrases such as bigger than and use more specific language such as "longer than" and "heavier than".

Level 4:

Students at this level should be given opportunities to describe a comparison in more than one way. Students understand that if the book is heavier than the pencil, then the pencil is lighter than the book. Students can also compare using an object as a benchmark. Students can state that my crayon box is about the same length as my scissors. Additionally, students can be challenged to compare common attributes of more than two objects. Instruction could integrate this standard with standard K.MD.C.4 having students sort a group of objects to show a group of all blocks longer than a given block and all blocks shorter than a given block.

Standard K.MD.B.3 (Supporting Content)

Identify the penny, nickel, dime, and quarter and recognize the value of each.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Analyze a given set of objects containing both coins and counters to identify which objects represent coins and which objects do not represent coins. However, they may not be able to distinguish one coin type from another coin type. Inconsistently name pennies, nickels, dimes, or quarters.	Name at least two types of coins from pennies, nickels, dimes, and quarters. Inconsistently identify the value of pennies, nickels, dimes, and quarters and does not necessarily associate the value to the physical representation of the coin.	Name the penny, nickel, dime and quarter and identify the value of each coin.	Name the penny, nickel, dime and quarter and identify the value of each coin.

Instructional Focus Statements

Level 3:

Students learn the names of coins the same way that they learn the names of any physical objects in their daily environment-through exposure and repetition. Students need to touch and feel real coins with numerous ongoing activities to recognize coins and their value. The value of each coin is something students must be taught. For these values to make sense, students must have an understanding of 5, 10, and 25 and see these quantities without needing to see countable objects. Students should be able to relate the value of and name of a nickel, dime, or quarter to pennies. For example, a student should be able to say a dime is 10¢ and is made up of 10 pennies. Money is a non-proportional model (i.e., the dime is not physically ten times larger than the penny). Students may have a misconception that the value of a dime is less than a nickel because of the size of the coins. The ability to count money is not an expectation at the kindergarten level. Students need to identify the coins and their value.

Features of coins should be discussed such as person on the coin, color, size, value indicated on the coin, etc. Students recognize that coins may look different but the coins still have the same name and value. For example, some pennies have the Lincoln Memorial on the back while newer pennies have

the Union Shield. Students should be able to describe the features of coins. Instruction for this standard integrates nicely with standard K.MD.C.4. Students should be able to sort coins based on either their type or their value.

Level 4:

Instruction at this level should include opportunities for students to compare and contrast coins. Given two coins students should be able to compare/contrast them using attributes such as color, the metal the coin is comprised of, the relative size of the coins, the texture of the edge of the coins, and which US president is represented on the coins. When comparing value, instruction integrates nicely with standard K.CC.C.7 where students are comparing two numbers up through 10. Students should be able to compare the values of pennies, nickels, and dimes. It is important that precise mathematical vocabulary be used when comparing the value of coins. It is important to emphasize "the value of a dime is more than the value of a penny" as opposed to "a dime is more than a penny" always connecting back to the concept that the value of a dime is the same as the value of 10 pennies. One note of caution about quarters, as twenty-five is above the number that students typically compare in kindergarten, students will need the opportunity to compare twenty-five counters or pennies to see ten counters or pennies in order to solidify the conceptual understanding that the value of the quarter is greater than the value of the other coins. Comparing with twenty-five exceeds the comparison expectation for kindergarten.

Standard K.MD.C.4 (Supporting Content)

Sort a collection of objects into a given category, with 10 or less in each category. Compare the categories by group size.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Sort a collection of objects into a given category, with 5 or less objects in each sub-category when there are no more than 2 sub-categories represented.	Sort a collection of objects into a given category, with 10 or less objects in each sub-category when there are no more than 3 sub-categories represented.	Sort a collection of objects into a given category, with 10 or less objects in each sub-category and compare the sub-categories by group size.	Identify how to sort a collection of objects without being given the category to use for sorting, sort the collection into the appropriate sub-categories, use descriptive words to explain the sub-categories in which their collection has been sorted, and justify the attributes that led them to sort the collection in that way. Sort a single collection of objects without being provided any categories for sorting the collection in multiple ways.

Instructional Focus Statements

Level 3:

Instruction should focus on helping students understand what it means to sort a group of objects into smaller groups based on a single pre-determined attribute. Students should be provided experiences where they classify objects using a wide variety of given categories as this lays the foundation for data collection in future grades. For example, given a set of objects that can be sorted by a teacher identified category such as color, students identify similarities and differences between objects and use the identified similarities and differences to sort the collection of objects into sub-categories (specific colors) determined by the student. Once the objects are sorted, students should be able to count the number of objects in each set and compare the size of the sets by using precise mathematical language such as least, same, most, more, and fewer. Initially, students may need a group of objects with a

limited number of sub-categories represented (e.g., only two colors represented). It is also important to note that standard K.CC.C.7 requires students to compare two given numbers up to ten. Thus, students at this level should be asked to compare two sub-categories at a time. Students should be using varied materials such as pattern blocks, attribute blocks, button collections, shoes, colored blocks, bear counters, and even the students themselves. Additionally, this standard integrates very nicely with other kindergarten standards such as standards K.MD.B.3 and K.G.A.3.

Level 4:

Instruction at this level should focus on students evaluating the attributes represented by a set of objects and self-determining the category they will use to sort the group into sub-categories and be able to justify the category chosen (MP 3). Students should be challenged to sort the same group of objects in more than one way (e.g., first by shape and then by color). Students should continue to compare the sizes of the sub-categories.

Geometry (G)

Standard K.G.A.1 (Supporting Content)

Describe objects in the environment using names of shapes. Describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind, between*, and *next to*.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Identify objects in their environment using informal names such as: balls, boxes, cans, etc. or when asked to name a shape the student states an attribute such as round for a circle. Use the relative position of provided objects in the environment to locate an object but not necessarily independently use a positional word to describe the position of objects.	Describe a few objects in the environment using names of common, easily recognized shapes (e.g., circles). Describe the relative position of objects in the environment using some of the terms above, below, beside, in front of, behind, between and next to. Students may display an inconsistent understanding of the terms.	Describe objects in the environment using names of shapes. Describe the relative position of objects in the environment using terms such as above, below, beside, in front of, behind, between and next to.	Describe objects in the environment that are made up of multiple shapes using the names of shapes. Create objects using manipulatives that resemble objects in the environment, are made up of multiple different shapes, and name the shapes used. Describe the relative position of objects in the environment using multiple positional terms.

Instructional Focus Statements

Level 3:

The study of geometry in kindergarten offers students an ideal, tangible way to interact with their environment by observing shapes in the world around them. The kindergarten geometry standards are progressive in nature in that students will need to have an understanding of this standard before they move through the remaining five. Ultimately, the first part of this standard is about helping students develop the appropriate vocabulary for geometry where they connect shape names to objects in the environment. Students should be encouraged to look for both two and three-dimensional shapes within their environments. Instruction should also provide opportunities for students to work with manipulatives such as pattern blocks, attribute blocks, Geoblocks and geometric solids. As students begin developing their academic vocabulary for geometry, they should be encouraged to use their own words

to describe shapes, associate them with familiar objects, and then finally learn the formal names of various shapes. Teachers should model vocabulary with numerous examples and, over time, encourage students to use correct geometric terms.

Work with geometric shapes provides students opportunities to use positional words, such as: above, below, beside, etc. to describe objects in the environment, developing their spatial reasoning abilities. Kindergarten students need numerous experiences identifying the location and position of actual two and three-dimensional objects in their environment prior to describing location and position of two and three-dimension representations on paper. Students should also have numerous opportunities to talk to the teacher and each other to make sense of what they are learning. This is an ideal opportunity to integrate literature into the mathematics classroom as there are many books that focus on both shapes in the environment and developing an understanding of positional words.

Level 4:

As students solidify their understanding of simple shapes, they can be challenged to look for complex shapes in their environment and deconstruct the complex objects they find into simple shapes. Additionally, they can be challenged to create objects in their everyday environment by combining shapes. For example, a student might build a house from several rectangles, triangles, and squares. Students should then be asked to name the various shapes represented in their construction. This will help build a foundation for students as they progress to naming shapes regardless of their position or size and modeling shapes in the world. As students grasp a wide variety of positional words, they should be challenged to describe relative positions using multiple positional terms.

Standard K.G.A.2 (Supporting Content)
Correctly name shapes regardless of their orientations or overall size.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Correctly name some 2-deminsional shapes.	Correctly name common 2-dimensional and 3-dimensional shapes. Inconsistently name shapes that are a non-typical size or non-typical orientation (e.g., Not recognize a triangle that is turned upside down as a triangle).	Correctly name shapes regardless of their orientation or overall size.	Analyze a given 3-dimensional shape to identify 2-dimsional shapes that make up the 3-dimensional shape.

Instructional Focus Statements

Level 3:

This standard builds on standard K.G.A.1 where students find and identify shapes in their environment and solidifies their understanding that the same shape can have a different orientation or size. Students should have experienced working with geometric terms for shapes (e.g., circle, square, rectangle, triangle, hexagon, cube, cone, cylinder and spheres) as they interacted with standard K.G.A.1. It is important to note that building meaning for these words involves much more than seeing a few examples and memorizing names. One very common misconception for students as they are first interacting with the formal terminology for shapes is thinking that orientation matters (e.g., students may believe that a tilted square is no longer a square but a diamond).

Instruction needs to provide a wide variety of opportunities for students to experience working with shapes in many different orientations and sizes. Students can use manipulatives such as pattern blocks, attribute blocks, Power Polygons, Geoblocks, and geometric blocks. Students need to explore and manipulate shapes in order to discover that orientation does not change the classification of the shape.

Instruction for this standard integrates well with standard K.MD.C.4 where students sort collections of objects. Sorting activities help students begin to see relationships between different representations for the same shape. They can also be given the opportunity to think about non-examples of shapes (e.g.,

they may be asked to sort a set of shapes identifying what is a triangle and what isn't a triangle). Students should work with a wide variety of different types of shapes. For example, they should see rectangles that are square in shape as well as rectangles that are long and skinny. Instruction that focuses on a wide variety of representations for the same shape will help students begin to develop a conceptual understanding of the unique attributes of each shape.

Level 4:

As students demonstrate a deep understanding of naming shapes in various sizes and orientations, they can be challenged to look at three-dimensional shapes and identify the two dimensional shapes that compose the three-dimensional shape. For example, they may look at a rectangular prism and notice that it is made up of six shapes; four rectangles and two squares. They may further notice that the rectangles are all four the same size and shape. Students may also be challenged to explain the attributes of various shapes to defend their classifications. This may lead to students' beginning to generalize attributes that all varieties of a particular shape have in common. For example, they may begin to generalize that all rectangles have four sides.

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Standard K.G.A.3 (Supporting Content)
Identify shapes as two-dimensional or three-dimensional.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Use a given two-dimensional shape to choose other shapes that are also two-dimensional. Use a given three-dimensional shape, choose other shapes that are three-dimensional.	Inconsistently identify shapes as two-dimensional or three-dimensional (e.g., students may call a sphere two-dimensional because they see it as "circle-like").	Identify shapes as two-dimensional or three-dimensional.	Explain what attributes make a shape two-dimensional as opposed to three-dimensional and vice-versa. Describe the similarities and differences between a two-dimensional shape and its related three-dimensional shape (i.e. students can compare and contrast a square and a cube).

Instructional Focus Statements

Level 3:

Instruction for this standard should focus on extending the understanding of shapes developed in working with standards K.G.A.1 and K.G.A.2 to further explicitly classify shapes as two-dimensional or three-dimensional. Students will need many opportunities to explore and discuss the characteristics of a wide variety of two-dimensional and three-dimensional shapes so that they develop a conceptual understanding of the unique differences between the two classifications. Instruction needs to include teachers modeling precise vocabulary and students using precise vocabulary as they discuss the classification of two and three-dimensional shapes. An additional focus of instruction includes having students provide justification for an assigned shape classification. They begin to explain that a two-dimensional shape is flat and has two measurable attributes (length and width) while a three-dimensional object is not flat (it is a solid object/shape) and has three measurable attributes (length, width, and height). In integrating instruction for this standard with standard K.MD.C.4, students may sort a given collection of two-dimensional and three-dimensional shapes by the number of dimensions.

Level 4:

Instruction for this level focuses on the similarities and differences of a two-dimensional shape, such as a square, and its related three-dimensional shape, a cube. Students should describe the square as being flat (two-dimensional) and the cube as solid (three-dimensional) having 6 square faces. As precise academic vocabulary is modeled, students will begin to describe geometric shapes with precise mathematical vocabulary.

Standard K.G.B.4 (Supporting Content)

Describe similarities and differences between two- and three-dimensional shapes, in different sizes and orientations.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Choose examples of a shape when given the name of a common two-dimensional or three-dimensional shape.	Name characteristics that all types of a particular two-dimensional shape have in common (e.g., all squares have 4 sides). Name characteristics that all types of a specific three-dimensional shape have in common (e.g., all cubes are made up of squares).	Describe similarities and differences between two, two-dimensional shapes that are the same type but may be different in size or orientation (e.g., how 2 rectangles are the same and how they are different considering that they may be different in size or orientation). Describe similarities and differences between two, two-dimensional shapes that are different types (e.g., How are a square and a rectangle the same and how are they different). Describe similarities and differences between two, three-dimensional shapes that are the same type but may be different in size or orientation (e.g., how 2 cylinders are the same and how they are different considering that they may be different in size or orientation). Describe similarities and differences between two, three-dimensional	Describe similarities and differences between a two-dimensional and related three-dimensional shapes (e.g., How are a square and a cube the same and how are they different).

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
		shapes that are different types (e.g., How are a cube and a rectangular prism the same and how are they different).	

Instructional Focus Statements

Level 3:

As students have had repeated experience visualizing, describing, constructing, combining, and manipulating a variety of two-dimensional and three-dimensional shapes in standards K.G.A.1, K.G.A.2, and K.G.A.3, they have developed a familiarity with the characteristics of individual shapes and groups of shapes. Instruction for this standard should focus on students relating one shape to another as they note similarities and differences between and among two-dimensional and three-dimensional shapes. For example, when comparing a triangle and a square, they note that they both are closed figures, have straight sides, but the triangle has three sides while the square has four. Or, when building in the Block Center, they notice that the faces on the cube are all square shapes. It is expected that students use imprecise vocabulary in describing the attributes of shapes as they note similarities and differences.

With numerous experiences and discussions using a wide variety of shapes, students develop a conceptual understanding of how to both identify and articulate the similarities and differences between two-dimensional and three-dimensional shapes of any form, size, or orientation.

Level 4:

This standard integrates well with standard K.MD.C.4. As students are able to identify two-dimensional and three-dimensional shapes in any size and orientation, they can begin to articulate their own rules for how shapes are sorted based on similarities and differences within the set. They should be able to explicitly explain their reasoning using properties of these shapes. To extend the students' awareness of three-dimensional shapes various prisms and pyramids could be used in addition to cube, cone, cylinder, and sphere. Two-dimensional shapes include square, triangle, rectangle, hexagon, and could be extended to include rhombi, ovals, and trapezoids.

Standard K.G.B.5 (Supporting Content)
Model shapes in the world by building and drawing shapes.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Choose examples of a shape when given the name of a common two-dimensional or three-dimensional shape.	Build simple three-dimensional shapes. Draw simple two-dimensional shapes.	Model shapes in the world by building three-dimensional shapes. Model shapes in the world by drawing two-dimensional shapes.	Model shapes in the world by building three-dimensional shapes, identifying the shape built, and justifying its classification using attributes of the shape. Model shapes in the world by drawing two-dimensional shapes identifying the shape built, and justifying its classification using attributes of the shape.

Instructional Focus Statements

Level 3:

Instruction for this standard should build upon and connect the understandings developed in standards K.G.A.1, K.G.A.2, K.G.A.3 and K.G.B.4. Constructing requires students to form mental images of shapes while thinking about the attributes of that shapes before a model can be created. Students apply their understanding of geometric attributes of shapes in order to create given shapes. For example, students may roll a clump of modeling clay into a sphere or use their finger to draw a triangle in the sand table while recalling various attributes in order to create that particular shape. Instruction needs to include conversations with students asking them to name the shape created and asking the student about the attributes of the created shape.

Because two-dimensional shapes are flat and three-dimensional shapes are solid, students may draw or build two-dimensional shapes but only build three-dimensional shapes. Shapes could be built using materials such as clay, toothpicks, marshmallows, gumdrops, straws, pipe cleaners, Popsicle sticks, etc. Students should understand and identify two-dimensional shapes used to construct three-dimensional shapes.

Geoboards and Anglegs are tools students could use to build different two-dimensional shapes while Polydrons can be used to construct three-dimensional shapes.

Level 4:

Students at this level should have numerous opportunities to draw, build, and identify two-dimensional and three-dimensional shapes with an emphasis on the student providing justification for what shape has been created based on the attributes of the shape. For example, a student may state “I know this is a cube because it has six square faces”. As students notice more geometric attributes, they will be able to expand their descriptions of geometric shapes.

Standard K.G.B.6 (Supporting Content)

Compose larger shapes using simple shapes and identify smaller shapes within a larger shape.

Evidence of Learning Statements

Students with a level 1 understanding of this standard will most likely be able to:	Students with a level 2 understanding of this standard will most likely be able to:	Students with a level 3 understanding of this standard will most likely be able to:	Students with a level 4 understanding of this standard will most likely be able to:
Create larger shapes by putting together simple two-dimensional shapes. Create larger shapes by putting together simple three-dimensional shapes. Identify smaller shapes present within a larger two-dimensional shape that has all smaller shapes pre-partitioned within the larger shape.	Compose a given larger shape using a provided set of simple two-dimensional shapes which can be used to make the given shape without any extra or missing pieces. Compose a given larger shape using a provided set of simple three-dimensional shapes which can be used to make the given shape without any extra or missing pieces. Identify smaller shapes present within a larger two-dimensional shape that has some of the smaller shapes pre-partitioned within the larger shape.	Compose a given larger shape using simple two-dimensional shapes. Compose a given larger shape using simple three-dimensional shapes. Identify smaller shapes present within a larger two-dimensional shape. Identify smaller shapes present within a larger three-dimensional shape.	Compose a larger shape using simple two-dimensional shapes in multiple ways (e.g., compose a hexagon out of 6 triangles and also can compose the same hexagon out of two trapezoids).

Instructional Focus Statements

Level 3:

The instructional focus for this standard extends student experience of modeling shapes in the real world, standard K.G.B.5, to intentionally composing shapes from other shapes. This concept begins to develop as students move, rotate, flip, and arrange two-dimensional shapes to create their own pictures using trial and error. For example, a student may use pattern blocks to create a car. Over time, as students learn more about the attributes of various shapes, they put them together to intentionally compose other shapes. For example, using pattern blocks, a student may intentionally put together two trapezoids to compose a hexagon. This work helps students develop their knowledge about attributes and characteristics of different shapes. Over time,

instruction should shift from students using shapes to create their own designs to asking students to use shapes that they are given to compose a given image. For example, when given an outline of a larger shape, kindergarteners may use pattern blocks or tangrams to fill the shape. They may need to look at a corner or length of a side to determine if a piece will fit in the space.

Conversely, as students explore combining shapes, they also think about ways to decompose a given shape. For example, when using pattern blocks, students may discover that a yellow hexagon may be made up of six green triangles, three blue rhombuses, or two red trapezoids. Initially students may need to decompose the shape by building on top of the shape and later move to building a copy beside the original shape.

Level 4:

Instruction at this level should focus on providing numerous opportunities for students to compose increasingly more complex shapes from a given image. For example, a teacher displays a picture of a cat made from pattern blocks. The picture is removed and students try to recreate the picture. Additionally, students should be challenged to compose shapes in multiple ways.

Opportunities such as these give students the opportunity to develop spatial sense. Spatial sense includes the ability to mentally visualize objects and spatial relationships, including being able to mentally move objects around. Meaningful experiences with mentally manipulating shapes, when provided consistently over time, help students develop spatial sense.