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| **Prerequisites** | **Trimester Three Standards**  **Grade: Kindergarten** | **Looking Ahead**  **(Grade 1)** |
| Count up to 51 by ones.  Count up to 100 by tens.  (Trimester 2) | Counting and Cardinality 1: Count to 100 by ones and tens.   * I can count to 100 by ones. | Count to 120 from a given number. |
| I can count by 1’sfrom any given number.  (Trimester 2) | Counting and Cardinality 2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1)   * I can count by 1’s from any given number. |
| Write up to 20.  Represent up to 10.  (Trimester 2) | Counting and Cardinality 3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). (K.CC.3.)   * I can represent a number with objects up to 20. | Write numbers up to 120. |
| Count each object up to 21.  Name the quantity up to 21.  Count a set up to 21.  (Trimester 2) | Counting and Cardinality 4a: Understand the relationship between numbers and quantities; connect counting to cardinality.  a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. (K.CC.4a)   * I can count giving each object one number name up to 32.   b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. (K.CC.4b)   * I can name the quantity of a set up to 32.   c. Understand that each successive number name refers to a quantity that is one larger. (K.CC.4.)   * I can count a set up to 32. | Count to 120 from a given number. |
| Answer how many up to 21.  Make a set up to 21.  (Trimester 2) | Counting and Cardinality 5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.   * I can count a set up to 32. * I can make a set when given a particular number up to 32. |
| Compare two sets up to 21.  (Trimester 2) | Counting and Cardinality 6: Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group, e.g., by using matching and counting strategies.   * I can compare two sets with up to 32 objects. | Compare two two-digit numbers using the symbols >, +, and <. |
| Compare two numbers between 1 and 5.  (Trimester 2) | Counting and Cardinality 7: Compare two numbers between 1 and 10 presented as written numerals. (K.CC.7.)   * I can compare two numbers. |
| Addition and subtraction story problems within 5.  (Trimester 2) | Operations and Algebraic Thinking 1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions or equations. (K.OA.1)   * I can represent addition story problems within 10. * I can represent subtraction story problems within 10.   **\* OA.1 and OA.2 are merged together on the district unit assessment.** | Addition and subtraction within 20, using strategies counting on, making ten, decomposing a number leading to a ten, using the relationship between addition and subtraction and creating equivalent but easier or known sums. |
| Operations and Algebraic Thinking 2: Solve addition and subtraction word problems, and add and subtract within10, e.g., by using objects or drawings to represent the problem.   * I can solve an addition story problem. * I can solve a subtraction story problem. |
| **Prerequisites** | **Trimester Three Standards**  **Grade: Kindergarten** | **Looking Ahead**  **(Grade 1)** |
| Decompose numbers between 1 and 5.  (Trimester 2) | Operations and Algebraic Thinking 3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2+3 and 5 = 4 +1).   * I can decompose a number 1-10 into pairs. * I can record how I decomposed a number. | Decompose numbers into tens and ones. |
|  | Operations and Algebraic Thinking 4: For any number from 1 to 9, find the number that makes 10 when added to the give3n number, by using objects or drawings, and record the answer with a drawing or equation.   * I can add two numbers that make 10. |  |
| Operations and Algebraic Thinking 5: Fluently add and subtract within 5.   * I can fluently add combinations within 5. * I can fluently subtract combinations with 5. |
| Numbers and Operations in Base Ten 1: Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.   * I can compose teen numbers. * I can decompose teen numbers. | Decompose numbers into tens and ones. |
| Uses and responds appropriately to positional words indicating location, direction, and distance.  (Trimester 2) | Geometry 1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.   * I can describe the location of an object (ex. above, below, beside, in front of, behind and next to).   **\*This concept is not formally assessed on the district benchmarks, but should be taught in daily routines.** | Continue as part of daily language and routines. |
| Describes basic two- and three-dimensional shapes by using own words.  Recognizes basic shapes when they are presented in a new orientation.  (Preschool) | Geometry 2: Correctly name shapes regardless of their orientations or overall size.   * I can name 2D shapes. * I can name 3D shapes. | Compose 2D and 3D shapes to form a composite shape. |
| Geometry 3: Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").   * I can tell the difference between a 2D and a 3D shape.   **\*This concept is not formally assessed on the district benchmarks.** |
| Geometry 4: Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).   * I can compare 2D and 3D shapes. * I can describe the similarities and differences between 2D and 3D shapes. |
| Geometry 5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.   * I can build a shape. * I can draw shapes. |
| Geometry 6: Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*   * I can make bigger shapes from smaller shapes. |
| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 1:  Count to 100 by ones and tens. | * I can count to 21 by ones. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | The emphasis of this standard is on the counting sequence. When counting by ones, students need to understand that the next number in the sequence is one more. When counting by tens, the next number in the sequence is ―ten more‖ (or one more group of ten). Students are to rote count (verbal saying of numbers in sequence) by starting at one and count to 100. (They are only expected to master counting on the decade (0, 10, 20, 30, 40 …). This objective does not require recognition of numerals. It is focused on the rote number sequence. Instruction on the counting sequence should be scaffolded (e.g. 1-10, then 1-20, etc.) Counting should be reinforced throughout the day, not in isolation. (Meaningful Counting)  Examples:   * Count the number of chairs of the students who are absent * Count the number of stairs, shoes, etc. * Counting groups of ten such as ―fingers in the classroom‖ (ten fingers per student). * Count the number of students in a group. * Count the number of specific object they have in their desk (e.g. crayons)   When counting orally, students should recognize the patterns that exist from 1 to 100. They should also recognize the patterns that exist when counting by 10s. Have students verbalize the patterns they see.  **Accurate in counting depends on three things**:  1. Knowing the patterns in the number-word list so that a correct number-word list can be said.  2. Correctly assigning one number word to one object (one-to one-correspondence)  3. Keeping track of which objects have already been counted so that they are not counted more than once.  Keeping tract—differentiating counted from uncounted entities—is more easily done by moving objects into a counted set. Doing so is not possible with things that cannot be moved, such as pictures in a book. Strategies for keeping track of messy, large sets continue to develop for many years. Regularity and rhythm are important aspects of counting. Activities that increase these aspects can be helpful to children making lots of correspondence errors. |  |  | | --- | | **Supplemental Lessons Counting and Cardinality 1** | | Teachers will use Investigations materials to teach CC.1. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | | | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 2:  Count forward beginning from a given number within the known sequence (instead of having to begin at 1) | * I can count by 1’s from any given number. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | The emphasis of this standard is on the counting sequence to 100. **CC.2** includes numbers 0-100. This asks for students to begin rote counting forward counting in a sequence from a number other than one.. (e.g. Given the number 4, the student would count, ―4, 5, 6 . . . .‖) This objective does not require recognition of numerals. It is focused on the rote number sequence. Games that require students to add on to a previous count to reach a goal number encourage developing this concept. Frequent and brief opportunities utilizing counting on and counting back are recommended. **These concepts emerge over time and cannot be forced**.  **Common Misconceptions**:  Counting on or counting from a given number conflicts with the learned strategy of counting from the beginning. In order to be successful in counting on, students must understand **cardinality** (*the number* *that ends the counting sequence represents how many objects are in the collection*). Students often merge or separate two groups of objects and then re-count from the beginning to determine the final number of objects represented. For these students, counting is still a rote skill or the benefits of counting on have not been realized. Games that require students to add on to a previous count to reach a goal number encourage developing this concept. Frequent and brief opportunities utilizing counting on and counting back are recommended. These concepts emerge over time and cannot be forced. |  |  |  | | --- | --- | | **Supplemental Resources for Counting and Cardinality 2** | | | Teachers will use Investigations materials to teach CC.2. If more practice is needed teams of teachers may find or create more experiences with this concept. | [Dot Card Resource](http://www.edplus.canterbury.ac.nz/literacy_numeracy/maths/numdocuments/dot_card_and_ten_frame_package2005.pdf) |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 3:  Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). | * I can write numbers up to 10. * I can represent a number with objects up to 5. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks for students to represent a set of objects with a written numeral. The number of objects being recorded should not be greater than 20.  Students can record the quantity of a set by selecting a number card/tile (numeral recognition) or writing the numeral. Students can also create a set of objects based on the numeral presented. Students should be given multiple opportunities to count objects and recognize that a number represents a specific quantity. Once this is established, students begin to read and write numerals (numerals are the symbols for the quantities). The emphasis should first be on quantity and then connecting quantities to the written symbols.  **A sample unit sequence might include:**  1. Counting up to 20 objects in many settings and situations over several weeks.  2. Beginning to recognize, identify, and read the written numerals, and match the numerals to given sets of objects.  3. Writing the numerals to represent counted objects.  Since the teen numbers are not written as they are said, teaching the teen numbers as one group of ten and extra ones is foundational to understanding both the concept and the symbol that represents each teen number. For example, when focusing on the number ”14” students should count out fourteen objects using one-to-one correspondence and then use those objects to make one group of ten and four extra ones. Students should connect the representation to the symbol “14”.  **Common Misconceptions:**  K.CC.3 addresses the writing of numbers and using the written numerals (0-20) to describe the amount of a set of objects. Due to varied development of fine motor and visual development, a reversal of numerals is anticipated for a majority of the students. While reversals should be pointed out to students, the emphasis is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself. Some students might not see zero as a number. Ask students to write 0 and say *zero* to represent the number of items left when all items have been taken away. Avoid using the word *none* to represent this situation. |  |  | | --- | | **Supplemental Lessons for Counting and Cardinality 3** | | Teachers will use Investigations materials to teach CC.3. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 4:  Understand the relationship between numbers and quantities; connect counting to cardinality.  a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.  b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.  c. Understand that each successive number name refers to a quantity that is one larger. | * I can count giving each object one number name up to 12. * I can name the quantity of a set up to 12. * I can count a set by counting on up to 12. |  |  |  |  | | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | This standardasks students to count a set of objects and see sets and numerals in relationship to one another, rather than as isolated numbers or sets. These connections are higher-level skills that require students to analyze, to reason about, and to explain relationships between numbers and sets of objects. This standard should first be addressed using numbers 1-5 with teachers building to the numbers 1-10 later in the year. **The expectation is that students are comfortable with these skills with the numbers 1-10 by the end of Kindergarten.** | | | | **4a** | **4b** | **4c** | | This part of the standard reflects the ideas that students implement correct counting procedures by pointing to one object at a time (one-to-one correspondence) using one counting word for each object (one-to-one, touching/synchrony), while keeping track of objects that have and have not been counted.. This is the foundation of counting. | 4b calls for students to answer the question ―How many are there?‖ by counting objects in a set and understanding that the last number stated when counting a set (…8, 9, **10**) represents the total amount of objects: ―There are **10** bears in this pile.‖ (*cardinality*). It also requires students to understand that the same set counted three different times will end up being the same amount each time. The idea is to develop a purpose for counting as keeping track of objects is developed. Therefore, a student who moves each object as it is counted recognizes that there is a need to keep track in order to figure out the amount of objects present. Conservation of number, (regardless of the arrangement of objects, the quantity remains the same), conservation of number is a developmental milestone which some Kindergarten children will not have mastered. The goal of this objective is for students to be able to count a set of objects; regardless of the formation those objects are placed. | 4c represents the concept of ―one more‖ while counting a set of objects. Students are to make the connection that if a set of objects was increased by one more object then the number name for that set is to be increased by one as well. Students are asked to understand this concept with and without objects. For example, after counting a set of 8 objects, students should be able to answer the question, ―How many would there be if we added one more object?‖; and answer a similar question when not using objects, by asking hypothetically, ―What if we have 5 cubes and added one more. How many cubes would there be then?‖ This concept should be first taught with numbers 1-5 before building to numbers 1-10. Students should be expected to be comfortable with this skill with numbers to 10 by the end of Kindergarten. |  |  |  |  | | --- | --- | --- | | **Supplemental Lessons Counting and Cardinality 4** | | | | [Count and Dump](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Count%20and%20Dump.pdf) | [Grab Bag](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Grab%20Bag.pdf) | [Creations](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Creations.pdf) | | [Hide It](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Hide%20It.pdf) | [Counting Stories](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Counting%20Stories.pdf) | [Grow and Shrink](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/Kindergarten/Grow%20and%20Shrink.pdf) |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 5:  Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects. | * I can answer “how many” by counting a set up to 12. * I can make a set when given a particular number up to 12. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard addresses various counting strategies. From the research in early childhood mathematics, (Kathy Richardson), students go through a progression of four general ways to count. These counting strategies progress from least difficult to most difficult:  1. Students move objects and count them as they move them  2. Students line up the objects and count them  3. Students have a scattered arrangement and they touch each object as they count and  4. Students have a scattered arrangement and count them by visually scanning without touching them.  Since the scattered arrangements are the most challenging for students, K.CC.5 calls for students to only count 10 objects in a scattered arrangement, and count up to 20 objects in a line, rectangular array, or circle. Out of these 3 representations, a line is the easiest type of arrangement to count. Students should develop counting strategies to help them organize the counting process to avoid re-counting or skipping objects.  **Examples**:   * If items are placed in a circle; the student may mark or identify the starting object. * If items are in a scattered configuration, the student may move the objects into an organized pattern. * Some students may choose to use grouping strategies such as placing objects in twos, fives, or tens (note: this is not a kindergarten expectation). * Counting up to 20 objects should be reinforced when collecting data to create charts and graphs.   **Misconceptions**  Some students might think that the count word used to tag an item is permanently connected to that item. So when the item is used again for counting and should be tagged with a different count word, the student uses the original count word. For example, a student counts four geometric figures: triangle, square, circle and rectangle with the count words: one, two, three, four. If these items are rearranged as rectangle, triangle, circle and square and counted, the student says these count words: four, one, three, two. |  |  | | --- | | **Supplemental Lessons for Counting and Cardinality 5** | | Teachers will use Investigations materials to teach CC.5. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 6  Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group, e.g., by using matching and counting strategies. | * I can compare two sets with up to 10 objects. |  |  |  |  | | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | This standard expects mastery of up to ten objects. Students can use matching strategies (Student 1), counting strategies or equal shares (Student 3) to determine whether one group is greater than, less than, or equal to the number of objects in another group (Student 2). | | | | **Student 1**  I lined up one square and one triangle. Since there is one extra triangle, there are more triangles than squares. | **Student 2**  I counted the squares and I got 8. Then, I counted the triangles and got 9. Since 9 is greater than 8, there are more triangles than squares. | **Student 3**  I put them in a pile. I then took away objects. Every time I took a square, I also took a triangle. When I had taken almost all of the shapes away, there was still a triangle left. That means that there are more triangles than squares. | | As children develop meaning for numerals, they also compare these numerals to the quantities represented and their number words. Modeling numbers with manipulatives such as dot cards and five- and ten-frames are tools for such comparisons. Children can look for similarities and differences in these different representations of numbers. They begin to ―see‖ the relationship of one more, one less, two more and two less, leading to the concept that successive numbers name quantities where one is lager. In order to encourage this idea, children need discussion and reflection of pairs of numbers from 1 to 10. | | |  |  | | --- | | **Supplemental Lessons for Counting and Cardinality 6** | | Teachers will use Investigations materials to teach CC.6. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Counting and Cardinality 7:  Compare two numbers between 1 and 10 presented as written numerals. | * I can compare two numbers between 1 and 5. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardcalls for students to apply their understanding of numerals 1-10 to compare one from another. Thus, looking at the numerals 8 and 10, a student must be able to recognize that the numeral 10 represents a larger quantity than the numeral 8. Students should begin this standard by having ample experiences with sets of objects (K.CC.3 and K.CC.6) before completing this standard with just numerals. Based on early childhood research, students should not be expected to be comfortable with this skill until the end of Kindergarten.  **Strategies**: As children develop meaning for numerals, they also compare these numerals to the quantities represented and their number words. Modeling numbers with manipulatives such as dot cards and five- and ten-frames are tools for such comparisons. Children can look for similarities and differences in these different representations of numbers. They begin to ―see‖ the relationship of one more, one less, two more and two less, thus landing on the concept that successive numbers name quantities where one is larger. In order to encourage this idea, children need discussion and reflection of pairs of numbers from 1 to 10. **Activities that utilize anchors of 5** **and 10 are helpful in securing understanding of the relationships between numbers. This** **flexibility with numbers will impact children’s ability to break numbers into parts.**  Children demonstrate their understanding of the meaning of numbers when they can justify why their answer represents a quantity just counted. This justification could merely be the expression that the number said is the total because it was just counted, or a ―proof‖ by demonstrating a one to-one match, by counting again or other similar means (concretely or pictorially) that makes sense. An ultimate level of understanding is reached when children can compare two numbers from 1 to10 represented as writtn numerals without counting. |  |  | | --- | | **Supplemental Resources for Counting and Cardinality 7** | | Teachers will use Investigations materials to teach CC.7. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Operations and Algebraic Thinking 1:  Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions or equations. | * I can represent addition story problems within 5. * I can represent subtraction story problems within 5. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to demonstrate the understanding of how objects can be joined (addition) and separated (subtraction) by representing addition and subtraction situations in various ways. This objective is primarily focused on understanding the concept of addition and subtraction, rather than merely reading and solving addition and subtraction number sentences (equations).  **Instructional Strategies**: Using addition and subtraction in a word problem context allows students to develop their understanding of what it means to add and subtract. Students should use objects, fingers, mental images, drawing, sounds, acting out situations and verbal explanations in order to develop the concepts of addition and subtraction. Then, they should introduced to writing expressions and equations using appropriate terminology and symbols which include **+**, **–**, and **=.** |  |  | | --- | | **Supplemental Resources for Operations and Algebraic Thinking 1** | | Teachers will use Investigations materials to teach OA.1. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Operations and Algebraic Thinking 2:  Solve addition and subtraction word problems, and add and subtract within10, e.g., by using objects or drawings to represent the problem. | * I can solve an addition story problem within 5. * I can solve a subtraction story problem within 5. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to solve problems presented in a story format (context) with a specific emphasis on using objects or drawings to determine the solution. This builds upon the students understanding of addition and subtraction from K.OA.1, to solve problems. Once again, numbers should not exceed 10. Teachers should focus on three types of problems during instruction. There are three types of addition and subtraction problems are: **Result Unknown, Change Unknown, and Start Unknown**. These types of problems become increasingly difficult for students. Research has found that Result Unknown problems are easier than Change and Start Unknown problems. Kindergarten students should have experiences with all three types of problems. The level of difficulty can be decreased by using smaller numbers (up to 5) or increased by using larger numbers (up to 10). (See Table 1 page 40) Using a word problem context allows students to develop their understanding about what it means to add and subtract. (*Addition is putting together and adding to. Subtraction is taking apart and taking from)*. Kindergarteners develop the concept of addition/subtraction by modeling the actions in word problem using objects, fingers, mental images, drawings, sounds, acting out situations, and/or verbal explanations. Students may use different representations based on their experiences, preferences, etc. They may connect their conceptual representations of the situation using symbols, expressions, and/or equations. Students should experience the following addition and subtraction problem types.  **Add To word problems, such as, ―Mia had 3 apples. Her friend gave her 2 more. How many does she have now?**  A student’s ―think aloud of this problem might be, ―I know that Mia has some apples and she’s getting some more. So she’s going to end up with more apples than she started with.‖  **Take From problems such as: José had 8 markers and he gave 2 away. How many does he have now?**  When modeled, a student would begin with 8 objects and remove two to get the result.  **Put Together/Take Apart problems with Total Unknown gives students opportunities to work with addition in another context such as: There are 2 red apples on the counter and 3 green apples on the counter. How many apples are on the counter?**  **Solving Put Together/Take Apart problems with Both Addends Unknown provides students with experiences with finding all the decompositions of a number and investigating the patterns involved. There are 10 apples on the counter. Some are red and some are green. How many apples could be green? How many apples could be red?** |  |  | | --- | | **Supplemental Resources for Operations in Algebraic Thinking 2** | | Teachers will use Investigations materials to teach OA.2. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [3. Construct viable arguments and critique the reasoning of others.](http://elementarymath.dmschools.org/3-construct-viable-arguments-and-critique-the-reasoning-of-others2.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Operations and Algebraic Thinking 3:  Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2+3 and 5 = 4 +1). | * I can decompose numbers between 1 and 5 into pairs. * I can record how I decomposed a number. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to understand that a set of (5) object can be broken into two sets (3 and 2) and still be the same total amount (5). The focus is on number pairs which add to a specified total, 1-10. In addition, this standard asks students to understand that a set of objects (5) can be broken in multiple ways (3 and 2; 4 and 1). Thus, when breaking apart a set (decomposing), students develop the understanding that a smaller set of objects exists within that larger set (inclusion). This should be developed in context before moving into how to represent decomposition with symbols (+, -, =). |  |  | | --- | | **Supplemental Resources for Operations and Algebraic Thinking 3** | | Teachers will use Investigations materials to teach OA.3. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Operations and Algebraic Thinking 4:  For any number from 1 to 9, find the number that makes 10 when added to the give3n number, by using objects or drawings, and record the answer with a drawing or equation. | * I can add two numbers that make 10. |  |  |  |  | | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | This standard builds upon the understanding that a number can be decomposed into parts. The number pairs that total ten are foundational for students’ ability to work fluently within numbers and operations. Different models, such as ten-frames, cubes, two-color counters, etc., assist students in visualizing these number pairs for ten.  Once students have had experiences breaking apart ten into various combinations, this asks students to find a missing part of 10. | | | | **Example: A full case of juice boxes has 10 boxes. There are only 6 boxes in this case. How many juice boxes are missing?** | | | | **Student A**  *Using a Ten Frame*  ―I used 6 counters for the 6 boxes of juice still in the case. There are 4 blank spaces so 4 boxes have been removed. This makes sense since 6 and 4 more equal 10‖. | **Student B**  *Think addition.*  ―I counted out 10 cubes because I knew there needed to be ten. I pushed these 6 over here because they were in the container. These are left over. So there’s 4 missing. | **Student C**  *Basic Fact.*  ― I know that it’s 4 because 6 and 4 is the same amount as 10‖. |  |  | | --- | | **Supplemental Resources for Operations and Algebraic Thinking 4** | | Teachers will use Investigations materials to teach OA.4. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Operations and Algebraic Thinking 5:  Fluently add and subtract within 5. | * I can fluently add combinations within 5. * I can fluently subtract combinations with 5. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard uses the word fluently, which means accuracy (correct answer), efficiency (a reasonable amount of steps), and flexibility (using strategies such as the distributive property and/or those shown below). Fluency is developed by working with many different kinds of objects over an extended amount of time. This objective does not require students to instantly know the answer.  Traditional flash cards or timed tests have not been proven as effective instructional strategies for developing fluency. This standard focuses on students being able to add and subtract numbers within 5. Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently.  **Strategies students may use to attain fluency include:**   * Counting on (e.g., for 3+2, students will state, ―3,‖ and then count on two more, ―4, 5,‖ and state the solution is ―5‖) * Counting back (e.g., for 4-3, students will state, ―4,‖ and then count back three, ―3, 2, 1‖ and state the solution is ―1‖) * Counting up to subtract (e.g., for 5-3, students will say, ―3,‖ and then count up until they get to 5, keeping track of how many they counted up, stating that the solution is ―2‖) * Using doubles (e.g., for 2+3, students may say, ―I know that 2+2 is 4, and 1 more is 5‖) * Using commutative property (e.g., students may say, ―I know that 2+1=3, so 1+2=3‖) * Using fact families (e.g., students may say, ―I know that 2+3=5, so 5-3=2‖)   Students may use electronic versions of five frames to develop fluency of these facts. |  |  | | --- | | **Supplemental Resources for Operations and Algebraic Thinking 5** | | Teachers will use Investigations materials to teach OA.5. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Numbers and Operations in Base Ten 1:  Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. | * I can compose teen numbers. * I can decompose teen numbers. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardis the first time that students move beyond the number 10 with representations, such as objects (manipulatives) or drawings. The spirit of this standard is that students separate out a set of 11-19 objects into a group of ten objects with leftovers. This ability is a pre-cursor to later grades when they need to understand the complex concept that a group of 10 objects is also one ten (*unitizing*). Ample experiences with ten frames will help solidify this concept. Research states that students are not ready to unitize until the end of first grade. Therefore, this work in Kindergarten lays the foundation of composing tens and recognizing leftovers.  Teaching the teen numbers as one group of ten and extra ones is foundational to understanding both the concept and the symbol that represent each teen number. For example, when focusing on the number ―14, students should count out fourteen objects using one-to-one correspondence and then use those objects to make one group of ten ones and four additional ones. Students should connect the representation to the symbol ―14. Students should recognize the pattern that exists in the teen numbers; every teen number is written with a 1 (representing one ten) and ends with the digit that is first stated.  Kindergarteners need to understand the idea of *a ten* so they can develop the strategy of adding onto 10 to add within 20 in Grade 1. Students need to construct their own base-ten ideas about quantities and their symbols by connecting to counting by ones. They should use a variety of manipulatives to model and connect equivalent representations for the numbers 11 to19. For instance, to represent 13, students can count by ones and show 13 beans. They can anchor to five and show one group of 5 beans and 8 beans or anchor to ten and show one group of 10 beans and 3 beans. Students need to eventually see *a ten* as different from 10 ones.  After the students are familiar with counting up to 19 objects by ones, have them explore different ways to group the objects that will make counting easier. Have them estimate before they count and group. Discuss their groupings and lead students to conclude that grouping by ten is desirable. |  |  | | --- | | **Supplemental Resources for Number and Operations in Base Ten 1** | | Teachers will use Investigations materials to teach NBT.1. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [2. Reason abstractly and quantitatively](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively5.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | [8. Look for and express regularity in repeated reasoning.](http://elementarymath.dmschools.org/8-look-for-and-express-regularity-in-repeated-reasoning2.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 1  Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*. | * I can describe the location of an object (ex. above, below, in front of, behind and next to). |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard expects students to use positional words (*above, below, beside, in front of, behind,* and *next to*) to describe objects in the environment.  Kindergarten students need to focus first on location and position of two-and three- dimensional objects in their classroom prior to describing location and position of two-and three- dimension representations on paper. Examples of environments in which students would be encouraged to identify shapes would include nature, buildings, and the classroom using positional words in their descriptions. Teachers should work with children and pose four mathematical questions: Which way? How far?  Where? And what objects? To answer these questions, children develop a variety of important skills contributing to their spatial thinking.  **Examples**:   * Teacher holds up an object such as an ice cream cone, a number cube, ball, etc. and asks students to identify the shape. Teacher holds up a can of soup and asks,‖ What shape is this can? Students respond ―cylinder! * Teacher places an object next to, behind, above, below, beside, or in front of another object and asks positional questions. Where is the water bottle? (water bottle is placed behind a book) Students say ―The water bottle is behind the book.‖ Students should have multiple opportunities to identify shapes; these may be displayed as photographs, or pictures. |  |  | | --- | | **Supplemental Geometry 1** | | Teachers will use Investigations materials to teach G.1. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  | | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

\*This concept is not formally assessed on the district benchmark assessment, but should be taught in daily routines.

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 2:  Correctly name shapes regardless of their orientations or overall size. | * I can name shapes. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardaddresses students’ identification of shapes based on known examples. Students at this level do not yet recognize triangles that are turned upside down as triangles, since they do not ―look like triangles. Students need many experiences looking at and manipulating shapes with various typical and atypical orientations. Through these experiences, students will begin to move beyond what a shape ―looks like to identifying particular geometric attributes that define a shape. Students should be exposed to many types of triangles in many different orientations in order to eliminate the misconception that a triangle is always right-side-up and equilateral. Students should also be exposed to many shapes in many different sizes.  **Examples**:    Teacher makes pairs of paper shapes that are different sizes. Each student is given one shape and the objective is to find the partner who has the same shape. Teacher brings in a variety of spheres (tennis ball, basketball, globe, ping pong ball, etc) to demonstrate that size doesn’t change the name of a shape. |  |  | | --- | | **Supplemental Resources for Geometry 2** | | Teachers will use Investigations materials to teach G.2. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  | | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 3  Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). | * I can tell the difference between a 2D and a 3D shape. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to identify two-dimensional (flat objects) and three-dimensional (solid objects). This standard can be done by having students sort 2-dimensional and 3-dimensional objects, or by having students describe the appearance or thickness of shapes. A final type of relationship between shapes that is very important is the difference between two-dimensional (flat) and three-dimensional shapes. Student should be able to differentiate between two dimensional and three dimensional shapes.   * Student names a picture of a shape as two dimensional because it is flat and can be measured in only ***two*** ways (length and width). * Student names an object as three dimensional because it is not flat (it is a solid object/shape) and can be measured in ***three*** different ways (length, width, height/depth). |  |  | | --- | | **Supplemental Resources for Geometry 3** | | Teachers will use Investigations materials to teach G.3. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  | | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 4  Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length). | * I can compare 2D and 3D shapes. * I can describe the similarities and differences between 2D and 3D shapes. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to note similarities and differences between and among 2-D and 3-D shapes using informal language. These experiences help young students begin to understand how 3- dimensional shapes are composed of 2-dimensional shapes (e.g.., The base and the top of a cylinder is a circle; a circle is formed when tracing a sphere). Students analyze and compare two- and three-dimensional shapes by observations. Their visual thinking enables them to determine if things are alike or different based on the appearance of the shape. Students sort objects based on appearance. Even in early explorations of geometric properties, they are introduced to how categories of shapes are subsume (*contained*) within other categories. For instance, they will recognize that a square is a special type of rectangle. Students should be exposed to triangles, rectangles, and hexagons whose sides are not all congruent. They first begin to describe these shapes using everyday language and then refine their vocabulary to include sides and vertices/corners. Opportunities to work with pictorial representations, concrete objects, as well as technology helps student develop their understanding and descriptive vocabulary for both two- and three- dimensional shapes.  **Instructional Strategies:**  The abilities involved in composing and decomposing shapes are important for many reasons. These geometric competencies are at the foundation of geometry, but also arithmetic (e.g.,composing and decomposing numbers and arrays in multiplication), measurement, and higher order geometric work. Creating and then iterating units and higher-order units in the context of construction patterns, measuring, and computing, are established bases for mathematical understanding and analysis. It is important to allow students to explore and build geometric understanding themselves. One important step to take is to switch from making assertions and generalizations to framing ideas as questions. Rather than saying, ―Every time you put two triangles together, you get a square‖—a mathematically incorrect statement. Ask the following:  ―How many different ways can you put these two triangles together to make a new shape?  ―What shapes will you get?  This allows children to see that even with two right triangles made from a square, they can put these together to make a triangle or a parallelogram. Kindergartners can develop the ability to intentionally and systematically combine shapes to make new shapes and complete puzzles. They do so with increasing anticipation, on the basis of the shapes’ attributes, and thus, children developmental imagery of the component shapes. They move from using shapes separately to putting them together to make pictures. A significant advance is that they can combine shapes with different properties, extending the pattern block shapes (whose angles are multiples of 30 degrees) common at early levels to such shapes as tangrams (with angles that are multiples of 45 degrees), and with sets of various shapes that include angles that are multiples of 15 degrees, as well as sections of circles. Combining these shape sets should be done after children have worked with the pattern-block shapes separately from the square/rectangle/right triangle shapes based on 90 degrees and 45 degrees because many compositions are possible when the angles are consistent. |  |  | | --- | | **Supplemental Resources for Geometry 4** | | Teachers will use Investigations materials to teach G.4. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [6. Attend to precision](http://elementarymath.dmschools.org/6-attend-to-precision3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 5:  Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. | * I can build a shape. * I can draw shapes. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standardasks students to apply their understanding of geometric attributes of shapes in order to create given shapes. For example, a student may roll a clump of play-doh into a sphere or use their finger to draw a triangle in the sand table, recalling various attributes in order to create that particular shape. Because two-dimensional shapes are flat and three-dimensional shapes are solid, students should draw two-dimensional shapes and build three-dimensional shapes. Shapes may be built using materials such as clay, toothpicks, marshmallows, gumdrops, straws, pipe cleaners, etc. |  |  | | --- | | **Supplemental Resources for Geometry 5** | | Teachers will use Investigations materials to teach G.5. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

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| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Geometry 6:  Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"* | * I can make bigger shapes from smaller shapes. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard moves beyond identifying and classifying simple shapes to manipulating two or more shapes to create a new shape. This concept begins to develop as students‟ first move, rotate, flip, and arrange puzzle pieces. Next, students use their experiences with puzzles to move given shapes to make a design (e.g., ―Use the 7 tangram pieces to make a fox.‖). Finally, using these previous foundational experiences, students manipulate simple shapes to make a new shape.  **Instructional Strategies**:  Students use pattern blocks, tiles, or paper shapes and technology to make new two- and three dimensional shapes. Their investigations allow them to determine what kinds of shapes they can join to create new shapes. They answer questions such as ―What shapes can you use to make a square, rectangle, circle, triangle? …etc. This is an opportunity to use blocks from a play center to create shapes composed of a series of blocks. Laying several rectangular prisms can make other identifiable shapes. Students may use a document camera to display shapes they have composed from other shapes. They may also use an interactive whiteboard to copy shapes and compose new shapes. They should describe and name the new shape. |  |  | | --- | | **Supplemental Resources for Geometry 6** | | Teachers will use Investigations materials to teach G.6. If more practice is needed teams of teachers may find or create more experiences with this concept. |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them2.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics5.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure4.html) | |

**Optional Whole Group Lesson Progression**

Trimester Pacing: 12 weeks

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| **Resource** | **Location** | **Primary Focus** | **Standard** |
| **Unit Six:** Investigation 1.1 | Six Tiles in All | * I can decompose a number into a pair. * I can record how I decomposed a number. | K. OA 3 |
| **Unit Six:** Investigation 1.2 | Toss the Chips | * I can represent addition story problems. * I can represent subtraction story problems. * I can decompose a number into a pair. * I can record how I decomposed a number. | K. OA 1  K. OA 3 |
| **Unit Six:** Investigation 1.3A | Counting on the Number Line  CC 35-37 |
| **Unit Six:** Investigation 1.3 | Arrangements of Five Through Ten Tiles |
| **Unit Six:** Investigation 1.4 | Counting Jar  \***See teaching note CC31** | * I can name the quantity of a set. * I can decompose a number into a pair. * I can record how I decomposed a number. | K. CC. 4B  K. OA 3 |
| **Unit Six:** Investigation 1.5 | Racing Bears | * I can count by 1’s from any given number. * I can add 2 numbers that make 10. | K. CC 2  K. OA 4 |
| **Unit Six:** Investigation 1.6 | Arranging Five Tiles | * I can name the quantity of a set. | K. CC 4B |
| **Unit Six:** Investigation 1.7 | Arranging Eight Tiles |
| **Unit Six:** Investigation 2.1 | Collect 15 Together | * I can add 2 numbers that make 10. * I can name the quantity of a set. | K. CC 2  K. CC 4B |
| **Unit Six:** Investigation 2.2 | Inventory Bags  **\*See teaching note CC32**  **\*See 1.3A CC36** | * I can add 2 numbers that make 10. * I can count giving each object one number name. | K. CC 2  K. CC 4A |
| **Unit Six:** Investigation 2.3 | Measuring Ourselves | * I can describe attributes of an object. * I can describe the length of an object. * I can describe the weight of an object. | K. MD 1 |
| **Unit Six:** Investigation 2.4 | Do We Have to Count Them All? | * I can count to 100 by ones. * I can count to 100 by tens. | K. CC 1 |
| **Unit Six:** Investigation 2.6 | Representing an Inventory  See CC32, CC36 | * I can count to 100 by ones. * I can count to 100 by tens. * I can write numbers up to 20. * I can represent a number with objects up to 20. | K. CC 1  K. CC 3 |
| **Unit Six:** Investigation 3.1 | Roll and Record 3 | * I can represent addition story problems. * I can represent subtraction story problems. * I can solve an addition story problem. * I can solve a subtraction story problem. | K. OA 1  K. OA 2 |
| **Unit Six:** Investigation 3.2 | Double Compare |
| **Unit Six:** Investigation 3.3 | Modeling Story Problems |
| **Unit Six:** Investigation 3.4 | Build and Remove |

**Optional Whole Group Lesson Progression (Continued)**

Trimester Pacing: 12 weeks

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| **Resource** | **Location** | **Primary Focus** | **Standard** |
| **Unit Six:** Investigation 3.5 | How Many Balls | * I can represent addition story problems. * I can represent subtraction story problems. | K. OA 1 |
| **Unit Six:** Investigation 3.6 | How Do You Show the One That Is Gone? | * I can represent addition story problems. * I can represent subtraction story problems. * I can solve an addition story problem. * I can solve a subtraction story problem. | K. OA 1  K. OA 2 |
| **Unit Six:** Investigation 3.7 | How Many Blocks? |
| **Unit Six:** Investigation 4.1 | Five Crayons in All  **\*See CC 34-Common Core Adaptation** | * I can decompose a number into a pair. * I can record how I decomposed a number. | K. OA 3 |
| **Unit Six:** Investigation 4.2 | Combinations of Six |
| **Unit Six:** Investigation 4.3 | Total of Six | * I can solve an addition story problem. * I can solve a subtraction story problem. * I can decompose a number into a pair. * I can record how I decomposed a number. | K. OA 2  K. OA 3 |
| **Unit Six:** Investigation 4.4 | Six Crayons in All | * I can represent addition story problems. * I can represent subtraction story problems. * I can solve an addition story problem. * I can solve a subtraction story problem. * I can decompose a number into a pair. * I can record how I decomposed a number. | K. OA 1  K. OA 2  K. OA 3 |
| **Supplemental Unit:**  Investigations 5A.1 | Teddy Bear Picnic  **\*See CC38** | K. OA 1  K. OA 2  K. OA 3  K. OA 5 |
| **Supplemental Unit:**  Investigations 5A.2 | How Many to 10?  **\*See CC 42** | * I can represent addition story problems. * I can represent subtraction story problems. * I can decompose a number into a pair. * I can record how I decomposed a number. * I can add 2 numbers that make 10. | K. OA 1  K. OA 3  K. OA 4 |
| **Supplemental Unit:**  Investigations 5A.3 | The Teen Numbers  **\*See CC47** | * I can compose teen numbers. * I can decompose teen numbers. | K. NBT 1 |
| **Supplemental Unit:**  Investigations 5A.4 | Roll and Record: Teen Numbers  **\*See CC51** | * I can decompose a number into a pair. * I can record how I decomposed a number. * I can add 2 numbers that make 10. * I can compose teen numbers. * I can decompose teen numbers. | K. OA 3  K. OA 4  K. OA 5  K. NBT 1 |
| Investigations 5A.5 | Teen Numbers  **\*See CC55** |

**\*Standards K.CC.6 and K.CC.7 are not specifically represented in a lesson on this progression. Students will be assessed on these standards, therefore it is important that they have continued experiences with the standards in this trimester.**

**Optional Whole Group Lesson Progression (Continued)**

Trimester Pacing: 12 weeks

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| **Resource** | **Location** | | **Primary Focus** | **Standard** |
| **Unit Five:**  Investigation 3.1 | | Shape Hunt  **\*See CC30-Teaching Notes** | * I can tell the difference between 2D and 3D shapes. | K. G 3 |
| **Unit Five:**  Investigation 3.2 | | A Close Look at Geoblocks | * I can describe the location of an object. * I can tell the difference between 2D and 3D shapes. | K. G 1  K. G 3 |
| **Unit Five:**  Investigation 3.3 | | Copying Cubes and Matching Faces | * I can compare 2D and 3D shapes. * I can describe the similarities and differences between 2D and 3D shapes. | K. G 4 |
| **Unit Five:**  Investigation 3.4 | | More Clay Shapes | * I can tell the difference between 2D and 3D shapes. * I can compare 2D and 3D shapes. * I can describe the similarities and differences between 2D and 3D shapes. | K. G 3  K. G 4 |
| **Unit Five:**  Investigation 3.5 | | Geoblock Match-Up | * I can tell the difference between 2D and 3D shapes. * I can compare 2D and 3D shapes. * I can describe the similarities and differences between 2D and 3D shapes. | K. G 3  K. G 4 |
| **Unit Five:**  Investigation 3.6 | | Build a Block | * I can make bigger shapes from smaller shapes. | K. G 6 |

**\*Standards K.CC.6 and K.CC.7 are not specifically represented in a lesson on this progression. Students will be assessed on these standards, therefore it is important that they have continued experiences with the standards in this trimester.**