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| **GRADE: Kindergarten** | |
| **Unit Title:** **NUMBERS**  **Lesson Title:** Fun with Cardinality!  **Estimated Duration: 2 days** | **Real-World Purpose:**  Learning to count in sequence and understanding cardinality is a skill that each person uses in everyday life. In order to be successful mathematical thinkers, students must have good number sense. Examples:  Count eggs for a recipe. Following directions: Come inside and go to the 4th door. Remember if the bell rings 3 times, that is a fire drill. |
| ***I Can***  **K. CC.4:** Understand the relationship between numbers and quantities; connect counting to cardinality.   1. 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. 2. 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.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. | |
| **Performance Objective: (Evidence of Learning):**  The students will answer “how many?” questions, count objects from 1-20, tell the number of objects counted and pair given numbers to that number of objects in 4 out of 5 trials. | |
| **Prerequisite Skills:**   * With prompting and support, recite numbers 1 to 30 in the correct order. * With prompting and support, recognize, name, and attempt writing numerals 1-10. * With guidance and support, understand the relationship between numerals and quantities. * Recognize that a numeral is a symbol that represents a number of objects, using developmentally appropriate pre-kindergarten materials. * Match quantities and numerals 0-5. * Count many kinds of concrete objects and actions up to 10, using one-to-one correspondence; and, with guidance and support, count up to 7 things in a scattered design. * Use the number name to represent the number of objects in a set, using developmentally appropriate pre-kindergarten materials. | |

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| **Materials/Resources:** | **Key Vocabulary:** |  |  |  |  |
| * circle counters • color tiles * dot cards • Ziploc bags * dice • number cards * small cups/tubs * index cards * string/yarn * linking cubes * ten frame blank cards * Ten Flashing Fireflies by Philemon Sturges | * count * counting on   • set   * sequence * tens * one * more * less |  | • • • •  •  • | numeral greater than less than equal number words (zero - twenty) number line diagram | I |
| **Elements of Rigor:**   * **Conceptual understanding of key concepts** * **Procedural skill and fluency** * **Rigorous application of mathematics in real-world contexts** | |  |  |  |  |
| **Lesson Introduction** | |  |  |  |  |

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| **How will you introduce the lesson?**  **Student Exploration Activity**  Prior to beginning this unit, the teacher will read Ten Flashing Fireflies by Philemon Sturges. After the story, students will go to centers and explore the manipulatives that will be used throughout the counting lessons. Each center will be different. It will include EITHER dice, linking cubes, counters, ten frame cards, tiles, number cards OR dot cards. The teacher will allow students to spend a few minutes exploring these items. The teacher will start a discussion about counting. The teacher will guide the conversation so that students recognize and/or state the correct name for each manipulative. The teacher will ask questions about numbers, such as Where can we find numbers? Have you seen them on T.V.?, in a store?, on the side of your school bus?, etc. The teacher will observe and listen as students discuss manipulatives to pre-assess student levels in regards to counting, cardinality and subtilizing (the ability to instantly see how many). The teacher may point to the manipulatives and ask, What number is this? How many items can you count? Or Can you count the dots on this die? |
| **Lesson Activities** |
| **Day 1**   1. The teacher will pass out ten frames and counters to students. The teacher will read the book Ten Flashing Fireflies aloud to the class. Students will add one counter to the ten frame each time a firefly is added to the jar. Pause during the reading to allow the students to count the total number of counters on the ten frame. Then have students remove one counter each time a firefly flies away. 2. The teacher will arrange cubes (quantities from 0-10) in a line and have students place the corresponding number of counters on their ten frame. Then show the numeral. For students who master this the teacher will add ***number words*** along with showing the numeral. 3. The teacher will continue to call out numbers (0-10) in random order until each number has been represented on the ten frame. 4. The teacher will have the students set aside the ten frame and display a number (0-10). The students will display the corresponding number of counters on their desks. Have students count aloud the number of counters and discuss the meaning of the last number they say when counting. 5. The teacher will continue to display a few more numbers allowing the students to set aside that many counters. The teacher will call on students that have counters arranged in various arrangements (line, circle or array). Share the various arrangements and ensure that students understand that the position or arrangement of the counters does not change the number. Model this for the students. 6. The teacher will display a number 0-10 and ask the students to display the corresponding number of counters. Then ask the students to add one more counter. The teacher will ask, “How many?” and allow the students to respond. Repeat the procedure and observe student responses. Note students that need additional intervention. 7. The students will set aside the ten frames and counters and work with a partner to draw or illustrate numbers from 0-10. Students may use pictures, numbers or words in their work. |

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| **Day 2**   1. The teacher will pass out 2 ten frames and 20 counters for students to work in pairs. The teacher will discuss using 2 ten frames instead of just 1. Display a number 0-10 and let students put the number of corresponding counters on the ten frames. Repeat the process for numbers 11-20 displaying the number in random order. 2. Play Fill the Frames (Attachment #1) with the whole group. Each student will have a copy of Fill the Frames. The teacher will roll one die (or two dice) and instruct the students to place the corresponding number of counters on the ten frame. The teacher will continue the procedure until students have filled up most of the spaces on the ten frames. Students may be allowed to play this game in pairs if additional practice is deemed necessary. Note: Ten Frames may also be purchased from www.EAIEducation.com for long-term use. 3. The teacher will instruct the students to set aside the ten frames and counters and get paper and pencil for this activity. Introduce the vocabulary words “more” and “less” to the students and display the words in the classroom. The teacher will display a number card 0-20 for the entire class. The teacher will ask students to write a number on their paper that is “more” than the displayed number. Repeat the same procedure and ask the students to write a number that is “less” than the displayed number. The teacher will share written student responses and allow students to explain their thinking and prove their answers. The teacher will continue to ask more complex questions such as, “Can you name a number that is less than 7 but more than 3?” The students may use counters in proving their answers. The teacher will guide the discussion and begin to use the terms “greater than” and “less than” in sharing the student responses. Observe student understanding and note those needing intervention. 4. The students will work in pairs to play Get to 20! (Attachment #2) while the teacher assesses students individually. The teacher will use the Dot Cards and Number Cards 11-20 (Attachment #3) to assess each student individually. Students will match the dot card with the correct number. The teacher will randomly ask students to show a number card that is greater than or less than another number. Note the counting strategies of each student (example: counts dots individually or recognizes a set of five or ten on the ten frames) | |
| 1. **Lesson Closure** | |
| Reinforce previous lessons using these technology links:  http://www.abcya.com/connect\_the\_dots\_20.htm http://www.abcya.com/counting\_fish.htm  http://www.education.com/games/comparing-quantities-quiz/ http://www.education.com/games/ten-frame-11-20/ | **Essential Questions:**   * Where do we see numbers each day? * What is counting and how do we use it? |
| **Standards for Mathematical Practice** (select all that apply) | |
| * Make sense of problems and persevere in solving them. * Reason abstractly and quantitatively. * Model with mathematics. * Use appropriate tools strategically. * Look for and make use of structure. | |

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| **Supplemental Activities** | | |
| **Intervention**   * Intervention • Identify different size groups of objects up to 5 or 10 with individual at-risk students. The teacher should place various items (counters, cubes, and tiles) in sets for the students to count. * Count to 20 by ones. The teacher may use a number line to support students in counting to 20. * Identify correct number of objects (counters or tiles) for a given number up to 20. The teacher should display a number card for the students to count out the corresponding number of objects. | | **Enrichment**   * Allow students to use multiple ten frames to make numbers larger than 20. The teacher can use a 100 chart to allow students to select a number to create using counters on the ten frames. * Fill in missing numbers in a series. The teacher may use a blank 100 chart and fill in many of the numbers. Then allow the students to fill in the missing numbers. |
| **Performance Based Assessment Task** | | |
| **Math Task**  **Performance Task: Counting**  (K.CC.4, K.CC.5, and K.CC.6)   * Understand relationship between numbers and counting * Count to answer “how many?” questions about 20 objects or less * 6 small clear cups or tubs (using a dry erase marker, label the cups with the numbers 3, 5, 10, 12, 14, and 17) * 40 counters (students will place the correct number of counters in each labeled cup/tub. Ex. For the cup/tub labeled 3, the student will place 3 counters in it). * Count parent fliers out for the teachers in the building. Each room has a different amount of students. Ex. Room 1 needs 10 fliers, Room 2 needs 5, etc. * Complete math worksheets (attachment) | **Rubric/ Plausible Student Response(s)**  **Rubric: Student Score Sheet**  Possible/plausible student responses: (15 points possible)   1. Student will receive 1 point for correctly counting each set of 4, 9, and 15 counters (total of 3 points possible). 2. Student will receive 1 point for each cup that is correctly filled with counters (total of 6 points) | |
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**Attachment #1**

*Frames may also be purchased from* [*www.EAIEducation.com*](http://www.eaieducation.com/)  *for long-term use.*

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**Attachment #2**

# Get to 20

**Materials Needed:**

* 1 die  & Two-color counters 

**Objective**: Students will work in pairs to see who can “get to the number 20” first.

**Directions:**

* 1. One student rolls the die and collects that number of counters on the table.
  2. The second student rolls the die and adds that many counters to the collection on the table.
  3. Each pair of students will count aloud together to determine the total number of counters on the table after each student has a turn.
  4. Play continues until each student has collected a combined total of 20 counters or more.

**Extension options**:

* Use two or more dice.
* Collect counters to “get to the number 30” or a larger.

***Attachment #****3*





