**Find a Five**

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| **In this lesson, students will use perceptual subitizing\* as an efficient method for determining “how many”. Through experiences, students will subitize sets within five.**  *\*Perceptual subitizing: instantly recognizing “how many” in a set*  *Conceptual subitizing: efficiently finding “how many” by recognizing and combining subgroups within a set.* |

**NC Mathematics Standards:**

**Count to tell the number of objects.**

**NC.K.CC.4** Understand the relationship between numbers and quantities.

* 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 (one-to-one correspondence).
* Recognize that the last number named tells the number of objects counted regardless of their arrangement (cardinality).
* State the number of objects in a group, of up to 5 objects, without counting the objects (perceptual subitizing).

**Standards for Mathematical Practice:**

2. Reason abstractly and quantitatively.

7. Look for and make use of structure.

**Student Outcomes:**

* I can find “how many” by counting and subitizing (instantly knowing the amount in a set).
* I can use subitizing as an efficient way to find “how many”.

**Math Language:**

* Count
* How many?
* Set
* Subitize
* Numerals 1, 2, 3, 4, 5

**Materials:**

* Pictures containing sets of five objects (e.g., five monkeys, five bananas, five pennies)
* Find a Five Cards – Set 1 (one set per pair of students)
* Find a Five Work Mats (one per student)
* Document camera

**Advance Preparation**:

* Find pictures of items arranged in sets of five
* Make copies and cut out Find a Five Cards – Set 1 and Work Mats

**Launch:**

1. Draw students’ attention to the Find a Five Work Mat.
   * Ask: What number do you see on this work mat? (five)
   * Say: Today, five is a very important number. Partners will play a game where they try to find sets (groups) of five.
   * Say: Here are some pictures of things that might be in a set of five (show pictures).
   * Ask: What are some other things that can be in a set, or group, of five? (e.g., fingers, toes, chicken nuggets, pencils, toy cars, dots on a die)
2. Place several Find a Five game cards under the document reader.
   * Say: These are some of the cards we will use with today’s game. Take a look at these cards. With a partner, decide which cards show sets of 5. When you and your partner are ready to share, hold your thumbs to your chest.
   * Briefly decide which cards show sets of five.
3. Explain Directions to Game:
   * Partners place a set of cards face down between them.
   * Each partner takes a work mat.
   * Partners take turns flipping a card and deciding if it has a set of five. If it does, the partner that flipped the card places it on his/her work mat. If the card does not have a set of five, the partner puts it aside and his/her turn ends.
   * The game ends when one partner has collected three sets of five.

**Explore:**

1. Allow 5-10 minutes for partners to play Find a Five. Early finishers may play again. As students work, observe to see how they find “how many”. Possible things to observe:
   * Knowing number names and the counting sequence
   * One-to-one correspondence, or lack of
   * Recognizing the that last number counted tells “how many”
   * Counting without touching vs. touching and counting
   * Subitzing

As students work, select who will share their strategies with the class. Look for students who used one-to-one correspondence and subitizing. Also, look for a student who lacked one-to-one correspondence as this will generate discussion that will help others.

**Discuss:**

1. Discuss solutions (10-15 minutes)
   * Bring the group together for a discussion about the strategies used during the game.
   * Have selected students share their strategies for finding “how many”.
   * Because the goal of this task is to use subitizing as an efficient method for finding “how many”, be sure to elicit this during the conversation.
   * Ask: How were the students’ ways for finding “how many” the same? How were they different? Which of these ways did you use? Did you use the same way for every card you flipped over?
   * Ask: Were there any cards you didn’t need to count, and you just instantly knew “how many”?
   * Introduce the word subitize (instantly recognize amount without counting) as an efficient way to find “how many” when the sets are small.
   * Explain: You will become good at subitizing when you have lots of practice. Each time you play this game, you will notice that you subitize more and count less.
   * Challenge the class to play the game one more time, subitizing as much as they can.

**Evaluation of Student Understanding:**

**Informal Evaluation:**

At the end of the lesson, observe students as they play Find a Five. Look to see if they are counting each time they flip a card, or if students begin to use subitizing as way to find “how many” (especially for some of the smallest sets).

**Meeting the Needs of the Range of Learners:**

**Interventions:**

* If students are overwhelmed by the different representations on the cards, begin with one or two different representations (i.e., multiple copies of the five frames or dot cards).
* Counting is not a precursor for subitzing. Even if students struggle to count, they may be able to subitize some sets. Support students in counting and knowing number names, while still allowing opportunities to subitze.
* For students who consistently subitze, provide them with Find a Five Cards - Set 2. This set focuses on conceptual subitizing within five.

**Extensions:**

* Repeat this game frequently in math centers until students are proficient “subitizers”.
* As part of a daily math routine, do a “quick flash”. Display one of the Find a Five Cards for 3-4 seconds. Have students state the quantity. Repeat with other cards.

**Possible Misconceptions/Suggestions:**

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| **Possible Misconceptions** | **Suggestions** |
| * Students may want to say they are subitizing when they are actually using a counting strategy. | * Be aware of the strategies students are using, and help articulate them. Remind students that people can typically subitize up to five objects. |
| * Students lack skills in one of the following areas:   + Knowing number names   + Rote counting   + One-to-one correspondence | * Subitizing and counting occur in different parts of the brain, and one is not a precursor for the other. In fact, research has shown that birds even subitize. As students attempt to find “how many”, support them in counting and knowing number names. They may quickly pick up subitizing, while learning these other essential skills. |

**Special Notes:**

* As is, this lesson focuses on perceptual subitizing (instantly seeing an amount). Later in the school year, this lesson may be modified to focus on conceptual subitizing (using a combination of perceptual subitizing and other mental processes to determine “how many”). Simply replace Find a Five Cards - Set 1 with Find a Five Cards - Set 2.
* Perceptual subitizing will prepare students to conceptually subitize. Perceptual subitizing also supports students’ fluency development, conservation of number (recognizing that a set can be moved around while maintaining its value), and unitizing (seeing a group of objects as a unit, rather than individual pieces).





