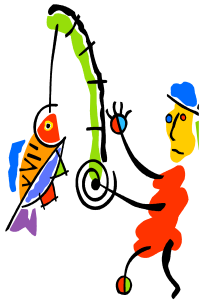

SCAFFOLDING TASK: A Fishing Tale

Approximately 2-3 Days

STANDARDS FOR MATHEMATICAL CONTENT

MCCK.OA.1 Represent addition and subtraction with objects, fingers, mental i drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expre equations.

MCCK.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

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

MCCK.OA.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

MCCK.OA.5 Fluently add and subtract within 5

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

It is extremely important to have students use story numbers, equations, drawings and models to represent their work. In the early years, story problems provide an excellent place to begin this habit. This is especially true before students have developed methods of computation. It is important to show students that explanations are needed, nearly always using words and numbers and often pictures as well. There is not a table designed for this task so that students can continue to plan and organize representations to show their work.

ESSENTIAL QUESTIONS

- How can I represent problems using objects, pictures, and numbers?
- How can I use different combinations of numbers to represent the same quantity?
- How can strategies help use solve problems?
- How can you model a math problem with objects or pictures?
- How do you know when your answer makes sense?
- What is a number relationship? How can number relationships help me?
- What happens when I decompose a quantity?

MATERIALS

- 10 connecting cubes (5 red/5 blue)
- Recording sheet

GROUPING

Whole/individual/small group task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Part I
Place the 10 connecting cubes in a bag and explain to students that you are pretending the cubes in the bag are fish and the bag is the lake. Ask for one volunteer to catch 3 fish from the bag. Ask students for their prediction as to what color fish will be caught. Have the volunteer "fish" out 3 cubes and ask the students if any of the predictions were accurate. Ask students how to show the combination of cubes using numbers, pictures, and words.

Part II
Present students with the connecting cubes and the story problem. Strongly encourage students to use numbers, pictures, and words to explain and represent their thinking. Once students have solved the problem, they should verify their combinations with another student to justify and explain their reasoning.

Comment: There are 3 different version of the task that can be presented to students. Each version of this task increases in complexity because number of people fishing increases which expands the possibilities. These story problems can also be used in sequence to scaffold learning.

Story Problem #1
Tony went fishing for redfish and bluefish. He caught a total of 5 fish. What are the possible combinations of fish that Tony could have caught? Show your thinking using numbers, pictures, and words.

Story Problem #2
Andrea and Tony went fishing for redfish and bluefish. They caught a total of 5 fish. What are the possible combinations of fish that Andrea and Tony could each have caught? Show your thinking using numbers, pictures, and words.

Story Problem #3
Shandra, Andrea, and Tony all went fishing. They caught a total of 5 fish. They caught 3 different types of fish (yellow tail tuna, bluefish and redfish). What are the possible combinations of fish that Shandra, Andrea, and Tony could have caught? Show your thinking using numbers, pictures, and words.

FORMATIVE ASSESSMENT QUESTIONS

- Are there more ways to decompose the number 5? How do you know?
- Why did you decide to do it this way?
- Are you sure that you have found them all? Why do you think so? How do you know?
- Did you develop a strategy to find your answers?
- Did you identify any patterns or rules? Explain!

DIFFERENTIATION

Extension

- Story problem: *Shandra, Andrea, and Tony all went fishing and they each caught at least 1 fish. They caught a total of 5 fish. They caught 3 different types of fish (yellow tail tuna, bluefish and redfish). What did each of the 3 people catch?* (recording sheet included)

Intervention

- As intervention you could have only one person fishing and place 10 counters in a bag (5 of two different colors) and have the student "fish" them out of the bag. After the student has pulled 5 counters out of the bag, have them record their "catch". (example: 3 blue and 2 red, or 1 blue and 4 red) Because the student is determining the different combination of 5 fish that can be caught, no combination can be repeated, however, this should be discovered and realized by the student through teacher questioning.

A Fishing Tale

Tony went fishing for redfish and bluefish. He caught a total of 5 fish. What are the possible combinations of fish that Tony could have caught? Show your thinking using numbers, pictures, and words.

A Fishing Tale

Andrea and Tony went fishing for redfish and bluefish. They caught a total of 5 fish. What are the possible combinations of fish that Andrea and Tony could each have caught? Show your thinking using numbers, pictures, and words.

A Fishing Tale

Shandra, Andrea, and Tony all went fishing. They caught a total of 5 fish. They caught 3 different types of fish (yellow tail tuna, bluefish and redfish). What are the possible combinations of fish that Shandra, Andrea, and Tony could have caught? Show your thinking using numbers, pictures, and words.