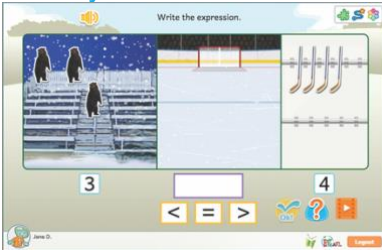# COMPARE, STEP 3

Lesson Plan: Number Concept, Compare, Step 3
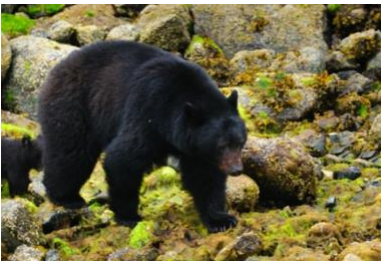
Activity Screen Shot

Theme Host: Chuck

Animal Friend: Black Bear

OVERVIEW

Students compare (=, >, or <) the cardinality of a set of bears and a set of hockey sticks by writing a symbolic equation or inequality.

PRINCIPAL LEARNING GOAL(S)

- Learn to express relationships between cardinalities of two sets (two small positive integers) using mathematical symbols "=", ">" and "<"

PREREQUISITE KNOWLEDGE AND SKILLS

- Practiced the act of counting physical objects
- Matched numerals 1 to 9 to counts of 1 to 9 objects
- Understood the concept of matching objects in two sets as a method for comparing the cardinality of the two sets
- Understood the meaning of the three relational symbols: "<", "=", ">"

RESOURCES NEEDED

- 3 sets of coloured pencils (blue, red and yellow)
- Large Lego blocks (2 colours, all same size)
- Cards with symbols "<". "=" and ">" (see Appendix 1)

POTENTIAL DIFFICULTIES

- Any student still having difficulty counting given objects/selecting the numeral corresponding to the count can be assigned additional practice of Idea 01 activities
- Any student having difficulties determining the relative size of two sets or of the numerals representing the two sets cardinalities (e.g., soft-locked in phase 2 or 3) may be given physical objects (e.g., two piles of Lego blocks, each pile having blocks of a different colour) that can be used to represent physically situations seen on the screen.

WARM UP   ~ 3-5 MINUTES

- Bring three sets of coloured pencils to class: 3 blue, 5 red, and 8 yellow. Hold up one group of pencils in your right hand (say reds) but spread out so that all students in the class can count how many there are. Simultaneously hold up another group of pencils in your

left hand (say blue). Ask the class "do I have less red pencils in this hand than blue pencils in this other hand, the same number of red pencils as blue pencils or more red pencils than blue pencils? Please hold up the card with the symbol that you think is correct." If not all answers are correct discuss with students how one can check the answer.

- The activity requires a "left to right" orientation for inequalities. When facing the class talk first about pencils in your right hand (left for students) and then about pencils in your left hand (right for students). Make all inequality statements using that same order.

CONSOLIDATION   ~15 MINUTES

To help students consolidate their new knowledge and make connections to prior learning, allow time for subsequent discussion. The questions below raise important issues:

1) *What did you have to do in this step?*
    Most students will say that they had to count the bears and the hockey sticks, and then they had to match the bears to the hockey sticks, and then they had to choose the correct symbol. When listening to the student answers try to make sure that they talk about the "number of bears" and the "number of hockey sticks" and that they say that they had to use the correct symbol to represent the relationship between these two numbers.

2) *How did you decide which symbol to use?*
    Listen for a response like "when the bears were matched with hockey sticks, if all bears and all hockey sticks were used, then the numbers were equal but if the some bears were left and all hockey sticks were already used up then the number of bears was bigger than the number of hockey sticks and if all bears were given hockey sticks and some hockey sticks were unused, then the number of bears was smaller than the number of hockey sticks. You can paraphrase what the students say to try to make it simpler, as in, after matching bears and hockey sticks, if one set still has unmatched objects, then that set is bigger and the other set is smaller.

3) *Write on the board three different inequalities, say 4 > 6, 4 < 6 and 4 = 6. Ask: could all three be correct? Could all three be incorrect? Explain to me how to check which or if any of them are correct.*
    Critical Idea: Given two numbers, they are either the same (i.e., equal) or one is larger and the other is smaller. Listen to the students expressing their version of this idea and try to restate it using language as close as possible to theirs.

APPENDIX

Appendix 1

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