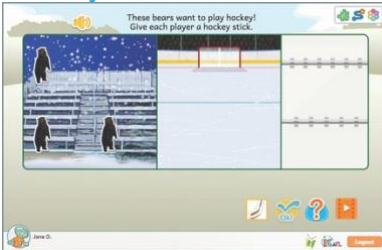# COMPARE, STEP 1

Lesson Plan: Number Concept, Compare, Step 1

Activity Screen Shot

Theme Host: Chuck

Animal Friend: Polar Bear

OVERVIEW
The students learn to test the equality of the cardinality of two sets by matching set elements.

PRINCIPAL LEARNING GOAL(S)
- Compare the cardinality of two sets that are the same
- Learn different ways of writing/saying that the number of objects in two different sets is the same

PREREQUISITE KNOWLEDGE AND SKILLS
- Practiced the act of counting physical objects
- Matched the numerals 1 to 9 with counting 1 to 9 objects

POTENTIAL DIFFICULTIES
- Losing track of the number of hockey sticks needed. Strategies include: clicking while counting; counting, writing down the counted number, then clicking; using fingers to count and then clicking.

WARM UP   ~ 3-5 MINUTES
The teacher displays a tower of Lego blocks (one colour, e.g., red). A pile of different colour blocks (e.g., blue) is next to it. All blocks are the same size. The teacher says "I want to build a blue tower that has the same number of blocks as the red one. You tell me when to stop." The teacher builds the blue tower right next to the red one and stops when told to (hopefully at the right time). The teacher should point out that she could check by building several new towers, each having one red and one blue block and do so.

MAIN ACTIVITY   ~ 20 MINUTES
The students must provide each bear with a hockey stick. The bears then meet the sticks on the ice, ready to play hockey. Three different expressions are used to state the equality of the cardinality of the two sets: "is the same as"; "is as many as"; and "is equal to". The teacher assists when necessary.

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) *Sometimes the number of bears was the same as the number of hockey sticks and sometimes they were not the same. How did you know when these two numbers were the same?*
In listening to the student answers you are hoping to hear that when the bears were matched with hockey sticks: if all bears and all hockey sticks were used, then the numbers were equal; if some bears were left and all hockey sticks were used, then the number of bears was bigger than the number of hockey sticks; if all bears were given hockey sticks and there were still some hockey sticks 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. You may also remind them of the warm up activity with the coloured pencils.

2) *In the previous activity what mathematical symbol did we learn? What did it mean? If I say that I have 5 apples and 5 pears, how can we write that using the mathematical symbol and how would we say it in words?*
If the students don't mention it, remind them that they learned about the symbol "=" (equals sign) and that it means that two sets of objects have the same quantities of objects. For example, they should be able to say that we write $5 = 5$ and that it means that the number of apples is the same as, is equal to or is as many as the number of pears.

3) *In this activity we learned to use two new symbols, ">" (bigger than) and "<" (smaller than). A student in another class was doing the same activity as you were. The student got the four following answers (write them on the board): $6 > 3$, $4 = 4$, $3 < 8$ and $5 < 2$. Can you tell me what the student's conclusions were?*
The students should answer that: $6 > 3$ means that there were 6 bears and 3 hockey sticks and that there were more bears than hockey sticks; $4 = 4$ means that there were 4 bears and 4 hockey sticks so that the number of bears and the number of hockey sticks were equal; $3 < 8$ means that there were 3 bears and 8 hockey sticks so that the number of bears was less than the number of hockey sticks; and $5 < 2$ means that there were 5 bears and 2 hockey sticks and the student was incorrect in saying that there were less bears than hockey sticks because 5 is bigger than 2, not smaller than 2. Note that it is useful to try to lead the discussion to the understanding that when not translating the expressions back to the context of bears and hockey sticks, writing "$6 > 3$" is equivalent to writing "$3 < 6$".