

DECOMPOSE, STEP 1

Lesson Plan: Number Concept, Decompose, Step 1

Activity Screen Shot



Theme Host: Chuck



Animal Friend: Beaver



OVERVIEW

In this step, students partition a given set of objects into two smaller subsets, thus decomposing the cardinality of the set, an integer, into a sum of two integers.

PRINCIPAL LEARNING GOAL(S)

- Introduce the concept of decomposition of a number into a sum of two numbers
- Reinforce the association between a numeral and a count of objects in a set

PREREQUISITE KNOWLEDGE AND SKILLS

- Associate the numerals 1 to 9 with a count of objects in a set

POTENTIAL DIFFICULTIES

- By focusing on clicking on the beavers and ignoring all other information (i.e., the beavers left on the grass and the total number of beavers), students may not be aware that they are partitioning a set. Ask "How many beavers are left on the grass?" or "How many beavers are there altogether?"

WARM UP ~ 3-5 MINUTES

Tell a story: "A farmer has eight cows (show 3 fingers on one hand, 5 on the other) in the barn. The farmer keeps 3 in the barn, sends 5 out to pasture (separate your two hands). In this story, there were three numbers, 8, 3 and 5. How are these three numbers connected? Hopefully the class will suggest that 8 is just the sum of 3 and 5.

MAIN ACTIVITY ~ 20 MINUTES

Students are shown a set of beavers seated on grass. Students are asked to send some beavers swimming instead. This activity provides a foundation for understanding decomposing an integer into a sum of two integers.

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 happened to the row of beavers when you clicked on a particular beaver that was on the grass?*

Students may talk about how the grass changes to a water image under the beaver. Hopefully some students will mention that the total number of beavers never changes. What did change was how many beavers were on the grass and how many beavers were in water. If necessary, use a projector to show students this step. Ask how many beavers there are altogether, then click on a beaver and ask the question again. Repeat this process a few times. Get students to say that the total is always the same. Then have students verbalize what does change.

- 2) *Does it matter which beaver you sent swimming?*

You are hoping to hear that it doesn't matter which beaver is sent swimming, just how many are sent swimming. You may project the step and try picking beavers from right to left, then for the next puzzle piece picking beavers from left to right, and then picking beavers somewhat randomly. Students will see that so long as the correct number is selected, it does not matter which beavers are chosen.

Note: Some students may say that it is easier to keep track when you select beavers that are next to each other and you should agree with such a statement. However, you should still make the point that this question is really about the idea that it is the number of objects in each of the two subsets that is important, not which particular objects belong to each of the two subsets.

