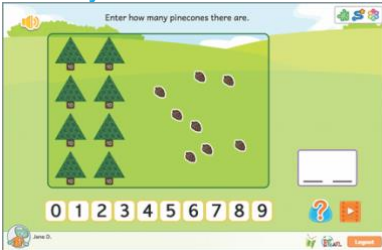


PLACE VALUE, STEP 5

Lesson Plan: Number Concept, Place Value, Step 5

Activity Screen Shot



Theme Host: Chuck



Animal Friend: Chow Chow



OVERVIEW

Step 4 used the metaphor of “trees” and “pinecones”. In Step 5, students work directly with two-digit numbers.

PRINCIPAL LEARNING GOAL(S)

- Two-digit numbers consist of a left digit representing “tens” and a right digit representing “ones”
- When there are no “tens”, we just write a one-digit number

PREREQUISITE KNOWLEDGE AND SKILLS

- Practiced the act of counting trees (“tens”), and separately pinecones (“ones”) and recording each count separately.
- Clear understanding that one tree represents ten pinecones

RESOURCES NEEDED

- Appendix 1 (pictures of apple trees and apples)

POTENTIAL DIFFICULTIES

- Some students may initially ignore the trees (“tens”) and only count individual pinecones (“ones”), but the software will not allow them to click OK until both digits have been entered. Just remind the students that one tree contains ten pinecones.

WARM UP ~ 3-5 MINUTES

- 1) Display images (see Appendix 1) of counters holding both apple trees and individual apples.
- 2) Remind students that each apple tree represents ten apples.
- 3) Ask students to hold up left hand fingers for the number of “tens”.
- 4) Ask students to hold up right hand fingers to indicate “ones”.
- 5) Ask students to say aloud the total number of apples.

MAIN ACTIVITY ~ 20 MINUTES

Students are asked to enter a two-digit number, digit by digit. Even if there are no “trees”=“tens”, the program forces entry of a 0. If the answer is correct, the 0 then fades away.

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) *Did you find this way of counting using trees (ten pinecones) and individual pinecones easier than if you just had to count a big pile of cones? If you just had a big pile of objects, could you organize the pile so that your job becomes just like the task you did on the computer? How?*
 - a) Encourage students to come up with concrete examples of counting in this way.
 - b) Allow students to suggest the idea of grouping objects other than in “tens” (e.g., with a pile of nickels, five nickels makes a quarter).
- 2) *Why do you think we use 10’s and not something else like 5’s, 12’s, or something else?*
 - a) Encourage students to notice that we have 10 fingers and 10 toes so the decimal system is “personal”. *You may point out that computers use a binary system and programmers use a system based on 16 so other systems can be useful.*
- 3) *In all of your examples did you notice that there were never more than 9 pine trees? Why not?*
 - a) Encourage students to notice that the only numbers to drag into the box for trees are 0 through 9 so of course you stop at 9. This means that the largest possible number here is 99.
 - b) Encourage students to discuss how they might organize a count of pinecones (or any objects) if there were a few more than 99. Ask how they would write such a number, and if they come up with the idea of another digit to the left of the “tens” digit, ask what it would represent.

APPENDIX 1

