

How Many Ways?

Adapted from Navigating Through Number and Operations in Prekindergarten - Grade 2

Objective: place value In this activity, students trade Base-Ten blocks as they construct different representations of the same number.

Materials:

Base-ten blocks (ones-blocks, tens-blocks, hundreds-blocks)

How Many Ways? Recording sheet per student

Activity:

1. Give each student about forty ones-blocks. Record the numeral 82 in view of students.
2. Point to the 8 and the 2 in the numeral and direct each student to take that many blocks.
3. Ask students if there is another way to show 82 using the numeration blocks?
4. Record on recording sheet.
5. Ask students to find all possible ways. Record.
6. Ask students, "How do you know you have all of the way?" Students should explain.
7. Continue with different numbers, such as 92.
Again, ask students to explain how they know they have all the solutions.
8. Ask students to find all of the possible ways to show 145 in different ways. (Use numeration blocks; hundreds, ten, ones as needed.)
9. Elicit predictions of number of ways.
10. Ask students if they notice a pattern? (As the number of tens decreases, the number of ones increases by 10.)
11. Provide opportunities for students to work with partners to investigate the pattern.
Students should record their work.

How Many Ways?

Extensions:

Ask students to predict the number of different ways of showing numbers with numeration blocks. (The number of arrangements will always be one more than the number of tens in the original number. What happens as the numbers in the hundreds place changes?}).

Challenge students to make and record different arrangements between 200 and 500.

Students may have difficulty in organizing their ideas as they record different ways.

- Find a number that can be represented exactly seven ways using only tens-blocks and ones blocks (any number in the 60's).
- Show 45 with exactly 18 blocks. (15 ones and 3 tens)

- Record other observations.

