Tools for Instruction

Model Three-Digit Numbers

Objective Represent three-digit numbers using models.	**Materials** base-ten blocks (hundreds, tens, ones); **Place-Value Mat** (page 3)

This activity builds on modeling two-digit numbers in different ways. For example, the number 46 can be shown in different ways with base-ten blocks, such as 46 ones, 2 tens and 26 ones, or 4 tens and 6 ones. In this activity, students use base-ten blocks to show three-digit numbers. This helps to develop an understanding of place-value relationships (such as multiples of 10, even if students cannot verbalize these yet) and number decomposition. This knowledge will help students as they begin to compute and compare numbers to 1,000 and beyond, and apply number properties, such as the Distributive Property, to computations.

Three Ways to Teach

Bundling with Base-Ten Blocks   10–15 minutes

Have the student use base-ten blocks to model two-digit numbers in different ways, for example, modeling 32 with 32 ones, 1 ten and 22 ones, 2 tens and 12 ones, and 3 tens and 2 ones. Ask the student to describe how 10 ones are bundled to make 1 ten. Move on to three-digit numbers. Display a hundreds flat and name it 100. Demonstrate that this is equal to 10 tens, or 100 ones. Instruct the student to show 11 tens and 6 ones on the **Place-Value Mat** (page 3). Point out that because only one digit can be written in each place, no more than 9 blocks can be in any place on the mat. Therefore, 11 tens must be regrouped into 1 hundred and 1 ten. Have the student do the regrouping and then state the name of the number shown. (one hundred sixteen) Ask the student to identify the value of the bundle of 10 tens. (one hundred) With the student, compare the digits of the number to the model using 1 hundred, 1 ten, and 6 ones. Use the place-value mat and ask the student to tell you what goes in the hundreds, tens, and ones places. Repeat for other examples, such as 108, 130, and 200. The student should model each number and then write the number in a place-value chart and say the number aloud.

Hundreds	Tens	Ones
1	1	6

Number Riddles   10–15 minutes

Provide clues using base-ten terminology. Ask the student to use base-ten blocks to model the number on the place-value mat and then write the number. You may want to help the student with the first riddle and have the student then complete the rest independently.

I have 1 hundred and 8 tens. What number am I? (180)
I have 4 hundreds and 7 ones. (407)
I have 5 hundreds, 3 tens, and 5 ones. (535)
I have 2 hundreds and 3 tens. (230)
I have 3 hundreds, 1 ten, and 4 ones. (314)
I have 4 hundreds. (400)
I have 3 hundreds and 2 tens. (320)
I have 6 hundreds and 6 ones. (606)

Writing Numbers from Base-Ten Blocks   10–15 minutes

Guide the student through modeling the number 473 using base-ten blocks. Ask: *How did you know how many of each type of block to use to model 473?* (Sample answer: The digit in the ones place is 3, so I used 3 ones units. The digit in the tens place is 7, so I used 7 tens blocks, and the digit in the hundreds place is 4, so I used 4 hundreds flats.) Provide the student with 6 hundreds blocks, 8 tens blocks, and 2 ones blocks. Guide the student through writing the number by identifying the number of ones, tens, and hundreds. (682) Repeat for other examples, such as 569, 401, and 240.

Check for Understanding

Provide the student with base-ten blocks and the riddle below. Have the student model the number with blocks on the place-value mat and then write the number in standard form. *I have 3 hundreds, 5 tens, and 4 ones. What number am I?* (354)

For the student who struggles, use the table below to help pinpoint where extra help may be needed.

If you observe...	the student may...	Then try...
the student struggles to write the number in the place-value chart,	not know how to move between modeling and writing the number.	modeling a three-digit number with base-ten blocks. Have the student name the number of hundreds, tens, and ones while you model writing the digits in the chart.
the student cannot write the number in standard form,	not understand the place-value block models.	reviewing the values of ones blocks, tens blocks, and hundreds blocks.

Name_____

Place-Value Mat

Ones	Tens	Hundreds