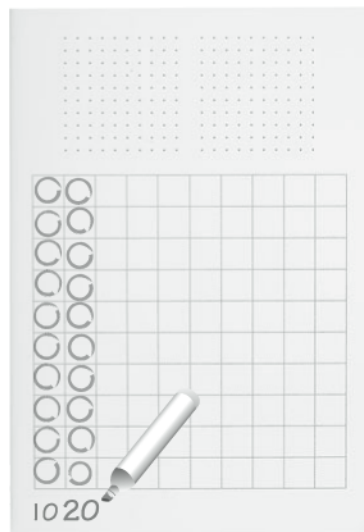


## Math Background

### Groups of Ten

One of the first steps in mastering numbers to 100 involves learning the names of the decade numbers (10, 20, 30, . . .) and making the association between these words and the corresponding tens they represent (1 ten, 2 tens, 3 tens . . .). With this knowledge, children are soon able to add tens mentally ( $30 + 40 = 3 \text{ tens} + 4 \text{ tens}$ ). These skills are introduced and practiced with a number of physical supports.

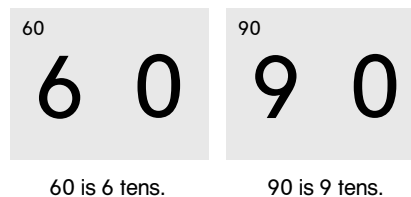
Special configurations on the MathBoard, such as the Dot Array and the  $10 \times 10$  Grid shown here, serve as concrete supports for counting by tens.



During the daily Quick Practice routines, children flash fingers as they practice counting to 100 by tens. Later in the unit they will use number flashes to show a number with both tens and ones ( $34 = 3 \text{ tens and } 4 \text{ ones}$ ).



With the help of Demonstration Secret Code Cards, children practice saying and visualizing decade numbers in random order. The cards help children make the connection between these groupings and their numeric symbols.



Quick Practice student-led rhyming activities help children build fluency with adding a ten when decade numbers are given out of sequence. Other activities build fluency with numbers before and after these groups of ten.

40 lions in a den. Add a ten. (50)  
70 lions in a den. Add a ten. (80)

39 tigers at the door. Here's one more. (40)  
90 tigers in a line. With 1 less, there's 89.

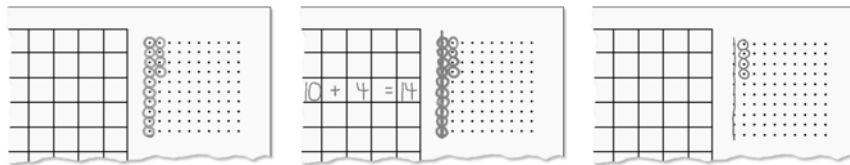
### Tens and Ones

After learning the decade numbers, children begin building an integrated concept of tens and ones starting with teen numbers. Integrating tens and ones into 2-digit numbers represents an enormous conceptual advance over simply counting by tens, and this skill takes practice. In Unit 4, practice is provided in a variety of ways as children repeatedly link tens groupings to concrete quantities, number words, and written numbers. In this way, they begin to construct the complex web of meanings and symbols that make up 2-digit numbers.

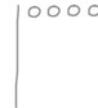
## Teaching Unit 4 (Continued)

**Ten-Sticks and Circles** Children learn to sort 2-digit numbers into tens and ones by drawing sticks (worth 10) and circles (worth 1). This system of representation allows them to visualize the meaning of the numbers and to understand the separate functions of the tens and ones in our number system. The system evolves gradually from the Dot Array on the MathBoard to freehand representations:

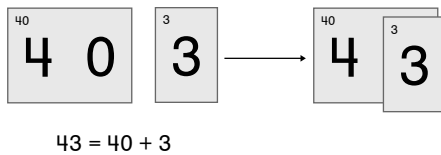
### Development of Ten-Sticks on Dot Array



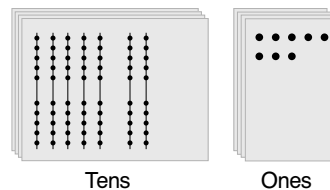
### Freehand



**Secret Code Cards** A ten card and a one card are used together to demonstrate the “invisible” zero in the tens place. These cards offer visual reinforcement of the place value concept.



The backs of the Secret Code Cards feature ten-sticks and circles that correspond to the numbers on the front. The back of the 70-card and the back of the 8-card are shown here.



**Number Path** The numbers to 100 are presented in order and in groups of ten on one side of the MathBoard. Children draw tens and ones on the Number Path and relate them to the tens and ones they draw freehand.

