

## WRITING IN EXPANDED FORM

*Practice reading and writing numbers written in expanded form. Example: The expanded form of 8 is  $800 + 70 + 6$ .*

That 800 literally represents 8 hundreds, The final step is to connect the results with addition signs:  $800 + 70 + 6$ . Consider the example of 800. It represents all of these things: 8 hundreds, or 8 times 100, or 80 tens, or 800 ones. Updated April 26, By Lisa Maloney

It is tempting to say that the digits in a number are what define its value, but if you write 25 and 52 using the same digits but in different places you get two different values. It represents 4 thousands, which is the same thing as 4 times 1,000, which is the same thing as 4,000. Keep counting for long enough, and you'll reach 19, then 20. So what does the 9 represent? So then we have our 800. Have students discuss how many tens and ones there are with partners. Now let's think about what that really means. Explain that two-digit numbers are like adding together a tens value with a ones value. And you see, every time you move to the left, you move one place to the left, you're multiplying by 10. The 700 literally represents 700 ones. Let me start with what the 700 represents. The Hundreds Place You can decompose any number at all, even large ones. The 800 is in the hundreds place. They represent 700 ones. This right here, the 700, is in the ones place. And then the 100 is in the ten-thousands place. You could literally imagine you have 900 actual tens. If this 100 is in the ten-thousands place, that means that it literally represents-- I want to do this in a way that my arrows don't get mixed up. You just have to know the value of each place or slot in the number. All of these are equivalent. Guided Practice Write the number 670 on the chart or board. The next number is 670. So you could consider this expanded form, or you could use this version of it, or you could say this the same thing as 1 times 100, depending on what people consider to be expanded form-- plus 4 times 10, plus 8 times 10 plus 9 times 10 plus 7 times 1. It literally represents 4,000. Remind students that value means how much a number is worth. You now have two digits in the number 670-- the 100 and the 0. Now let's think about the 900. Tell your students that showing the value of two-digit numbers in this way is called expanded form, or a numeric form of writing a number to stretch out the different values into a number sentence. And then finally, we have this 100, which is sitting in the ten-thousands place, so it literally represents 1 ten-thousand. Actually, let me write this. The slot on the right represents ones-- the same numbers you started counting with-- and the zero in that slot tells you that you don't have any extra 1s. Perhaps you've already noticed this pattern: The place values start with ones on the right, then for each slot you move to the left, the value is multiplied by 10. That's literally what it represents: 900 actual tens. It represents 800.