

[101] Large Numbers, to Billions

Need to be able to read 3-digit numbers,

Students need to be able to read all numbers from 0 to 999,999,999,999.

*When reading numbers that do not have a decimal point, never say “and” — the word **and** is used only to represent a decimal point. The number 326 is read “three hundred twenty-six” — **not** “three hundred and twenty-six.”*

This is a fun topic to teach to several children together. You can do it at any time in the curriculum as long as the child can read 3-digit numbers. If you want to delay teaching this until more than one child is ready, that is fine.

Teaching ideas

Teaching big numbers is really easy once the student can accurately read all 3-digit numbers (like 205 or 410). The zeros are sometimes tricky.

Here’s what to do.

1. Make 3 commas on construction paper using 3 different colors. Also write the words *thousand*, *million*, and *billion* on 3 separate pieces of paper. Put a loop of masking tape on the back of each one (or attach a magnet if you are using magnetic whiteboard).
2. Ask students if they have a first name and a last name, and talk about the first names and last names of friends. (You are emphasizing the first name – last name idea.)

Now say (be enthusiastic & dramatic):

“Did you know that big numbers have first names and last names too? The first name has only 1, 2, or 3 numbers, like this (show a 3-digit number). What is this number?” (Go on to show the child five or six numbers from 1 to 3 digits long. Erase after he or she reads each one correctly.)

NOTE: If at this point the child has a problem reading 3-digit numbers, then STOP — don’t do any more until you’ve practiced reading 3-digit numbers enough for the student to be able to read them accurately.

TIP: Teach your child to read all of these numbers without saying “and” — the number 413 is read “four hundred thirteen,” not “four hundred and thirteen.” In math, the word *and* is reserved for the decimal point. (This is covered in more detail in [106] Large Numbers to Trillions, page Md:202.)

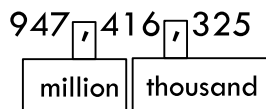
*“Great! Those are the big numbers’ first names. Now for the **last** names. This first comma is thousand. Now look at this number.”*

3. Write two three-digit numbers separated by a comma: 416,325.

*“The first number’s name is 416, and that number’s last name is **thousand**. But the poor number at the end (325) doesn’t get a last name. It’s so sad!*

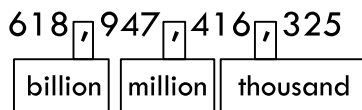
4. Write 3 more digits (and another comma): 947,416,325.

“The next last name we learn is **million**. This number’s first name is 947, and the last name is **million**.”



5. Now write in 3 more digits (and another comma): 618,947,416,325.

“The next last name we will learn is **billion**. The first name is 618, and the last name is **billion**.”



“Now what is the last name of (point to a comma) this one? This one?”

6. At this point, take one name label off and go through the questions again. “What is this number’s first name? his or her last name?” Repeat for all 4 sets of numbers, remembering to say (sadly), “The end number has no last name.” Repeat twice, each time removing one more name label until there are only commas and no name labels.

Repeat steps 3-6 with different large numbers, using only the digits 1-9. This process can be repeated for several days if needed. When these steps are easy for your child, then go on to step 7.

7. Write a series of long numbers on the board and have the child read each one.

When the child can read 12-digit numbers with confidence, say “Okay, now we’re going to get really tricky. I’m going to try to fool you.” Start writing numbers that include zeros, such as 401,608,220,130 or 300,000,100,005. Remember to read each 3-digit number for the *first name* (re-write it separately if he or she gets confused), and then read the comma *last name*.

NOTE: Any zeros in a number are not read — zero is a place holder, not a name. Thus, 614,000,422 is read *six hundred fourteen million, four hundred twenty-two*.

Finally, make numbers of different lengths, like 41,003,200 or 1,928,150.

By the end of the lesson, the child should be reading long numbers easily. Periodically review the “last names” so your child doesn’t get them mixed up.

NOTE: A more advanced lesson is [106] Large Numbers to Trillions, page Md:202. You can combine these lessons together or teach them separately.