A Place of Value

1. Take a bunch of sticks and count them using *only* the following words: zero, one, two, three, four, five, six, seven, eight, nine (Note: There are no words such as "ten", "eleven", "twelve", "thirteen", "twenty", etc. allowed during this activity!). You may write these quantities using *only* the following symbols: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
    a. Describe the rules (as you keep putting one stick at a time in the group) for when you needed to switch to two (or more) of the symbols while counting. In representing quantities in which you are forced to use two or more symbols,, are each of the symbols representing the same quantities?

    b. Using bundling or blocks, count from 97 to 112. From 697 to 712. Use them to decide what would be the symbol for the quantity just before 400. Use them to count backwards from 4213 to 4189.

2. Now suppose we wanted to count how many sticks we have and we still wanted to use the usual place value system to write and speak about how many are in the set. However, the usual symbols have been abolished (except for zero = 0) and you are only allowed to use the symbols A, B, C, D, E, and F.
    a. How many single sticks are allowed at any one time in this system (When do you bundle and how many sticks are in a bundle?)? How many bundles are allowed at any one time in this system? How many "superbundles" are allowed at any one time in this system?