

**Formation of Greatest and Smallest Numbers**

In formation of greatest and smallest numbers we know the procedure of arranging the numbers in ascending and descending order. The position of the digit at the extreme left of a number increases its place value. So the greatest digit should be placed at the extreme left side of the number to enhance its value.

**For example:**

**(i)** Suppose we have to form the greatest number with the digits 6, 5, 2, 9. We know that a four digit number has four places, i.e., thousands, hundreds, tens and ones or units from left to right as **Th**, **H**, **T**, **O**. If greatest to lowest digits are placed at these places in descending order, we get the **greatest number** and if placed in ascending order, we get the **smallest number**.

Observe the formation of greatest and smallest numbers so formed are:

**Th      H       T       O**  
**Greatest number           9       6       5       2**

**Smallest number           2       5       6       9**

To get the greatest number, the greatest digit 9 is placed at the highest valued place, i.e., thousands-place, next smaller digit 6 at hundreds-place, still smaller digit 5 at ten's place and the smallest digit 2 at one's or units place.  
  
Thus, the greatest number is 9652.  
  
To get the smallest number, the smallest digit 2 is placed at thousands-place, next greater digit 5 at hundred’s place, still greater digit 6 at ten's place and greatest digit 9 at one's or units place.  
  
Thus, the smallest number is 2569.

**(ii)** Suppose we have to form the greatest number with the digits 8, 1, 4, 7. We know that a four digit number has four places, i.e., thousands, hundreds, tens and ones or units from left to right as **Th**, **H**, **T**, **O**. If greatest to lowest digits are placed at these places in descending order, we get the **greatest number** and if placed in ascending order, we get the **smallest number**.  
  
Observe the formation of greatest and smallest numbers so formed are:

**Th      H       T       O**  
**Greatest number           8       7       4       1**

**Smallest number           1       4       7       8**

To get the greatest number, the greatest digit 8 is placed at the highest valued place, i.e., thousands-place, next smaller digit 7 at hundreds-place, still smaller digit 4 at ten's place and the smallest digit 1 at one's or units place.  
  
*Thus, the greatest number is 8741.*  
  
To get the smallest number, the smallest digit 1 is placed at thousands-place, next greater digit 4 at hundred’s place, still greater digit 7 at ten's place and greatest digit 8 at one's or units place.  
  
*Thus, the smallest number is 1478.*

In formation of greatest and smallest numbers these are the procedure of arranging the numbers in ascending and descending order.