How I got the random numbers:

I started n (length of array) at 2000 and did a while loop for 10 iterations by adding 2000 after each loop (while n <= 20000 : includes the 10th 20000 array).

Within the while loop i created an array arr and made another while loop from 0 to n and appended random int from 0 to 10000.

I then start time, sorted then printed.

The arr is then reset and reused on the next n iteration.

Prediction / Comparison:

my formulas are:

merge => y = (nlogn) / 500000

insertion => y = (n^2) / 14600000

which when entering 20,000 I get

merge => 0.17204

insertion => 27.3972

which are fairly close, which some fine tuning would be better.

