Dynamic Array Analysis Worksheet

BEGIN ALGORITHM

1. IF the actual number of occupied slots in the array is less than the physical capacity of the array, place new element in the leftmost vacant slot and you're done.
2. ELSE
   (a) Create a new array with twice the capacity of the existing array.
   (b) Copy elements from existing array to new array.
   (c) Add element to the leftmost location in the new array
   (d) Delete old array

END ALGORITHM

Start with an empty array of capacity 1. Now, insert elements 1 through 16 one by one into the array doubling the capacity when needed as described above. Calibrate the run time of this sequence of insertions by solely counting the *number of single-element copy operations* for each insertion. Draw diagrams if needed.

Insertion	# Single-element copies
1	0
2	1
3	2
4	0
5	4
6	0
7	0
8	0
9	8
10	0
11	0
12	0
13	0
14	0
15	0
16	0
TOTAL	15