Insertion Sort Unplugged Activity

1. Shuffle the deck of 10 cards (The algorithm refers to sorting n items so in this example n is 10)

2. Place the cards one at a time in a single row on the table. The positions of the cards are 0 through 9 read left to right. For example if after placing the cards in a row you have the following

8 10 3 4 Ace 7 5 9 2 6

then 8 is in position 0, 10 is in position 1, 3 is in position 2, etc.

3. Sort the cards using the Insertion Sort algorithm. Where the algorithm says "copy" you can move the card into the correct position leaving a hole in your row of cards.

4. Record the total number of times two cards are compared. In the insertion sort algorithm you are comparing two cards each time you check if "temp is larger than the element at position j".

5. Repeat steps 1 through 4 a second time

6. Was the value you calculated in step 4 the same for the both times.

7. Can you create a formula in terms of the number of cards to be sorted whose value is the same as that found in step 4. (i.e. You found a value when you sorted 10 cards. What would the value be if you sorted 50 cards or in general what would the value be if you sorted n cards)