Sort, put an unordered set of data into ascending order by swapping pairs of values repeatedly.

Bubble Sort, ascending order (slow, but easy to code)

1. Each pass
   1. Start at beginning of Array.
   2. Examine two consecutive items and if they are out of order, swap them.
   3. Move one item.

//Bubble Sort Trace

42 18 29 65 28 83 71 33 52 48

1st pass: 42 > 18, swap them: 18 42 29 65 28 83 71 33 52 48: 42 > 29, swap them.

18 29 42 65 28 83 71 33 52 48: 42 < 65, keep, 65 > 28, swap them:

18 29 42 28 65 83 71 33 52 48: 65 < 83, keep, 83 > 71, swap them:

18 29 42 65 28 71 83 33 52 48: 83 > 33, swap them:

18 29 42 28 65 71 33 83 52 48: 83 > 52, swap them:

18 29 42 28 65 71 33 52 83 48: 83 > 48, swap them:

18 29 42 28 65 71 33 52 48 83: End of first pass

Do the same for each pass until all of the numbers are in order smallest to largest.

Selection sort: minimizing swaps, 1 swap per pass.

//Selection Sort Trace

| 42 35 21 63 74 15 56 1. Find smallest

15 | 35 21 63 74 42 56 2. Swap smallest w/ first item in unsorted data

15 21 | 35 63 74 42 56 3. Move “wall” forward

15 21 35 | 63 74 42 56

15 21 35 42 | 74 63 56

15 21 35 42 56 | 63 74

15 21 35 42 56 63 | 74

15 21 35 42 56 63 74 |